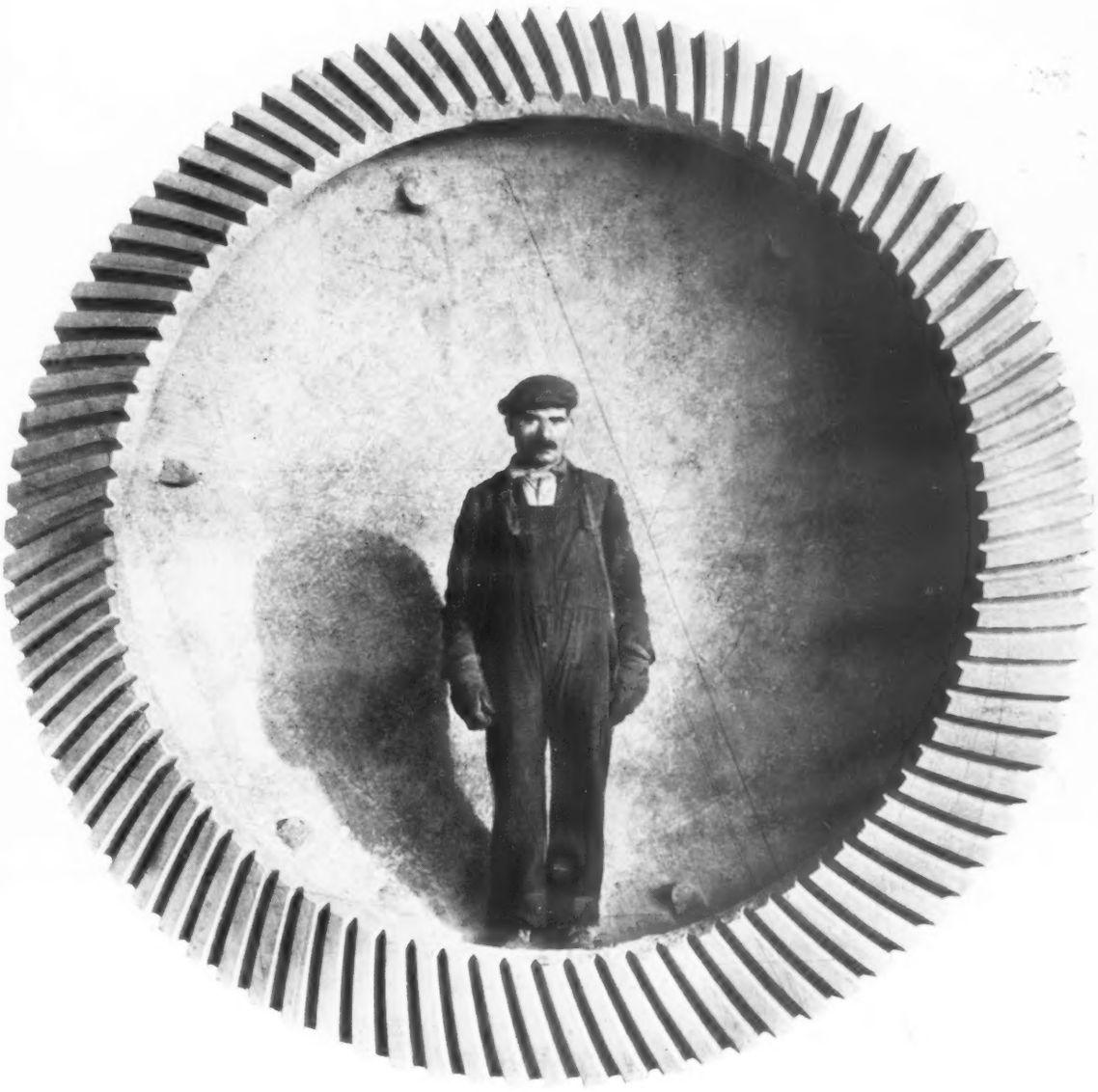
MEDICAL SCIENCE
GENERAL LIBRARY
UNIV. OF MICH.

FEB 5 1931

STEEL

For forty-eight years—IRON TRADE REVIEW

February 5, 1931

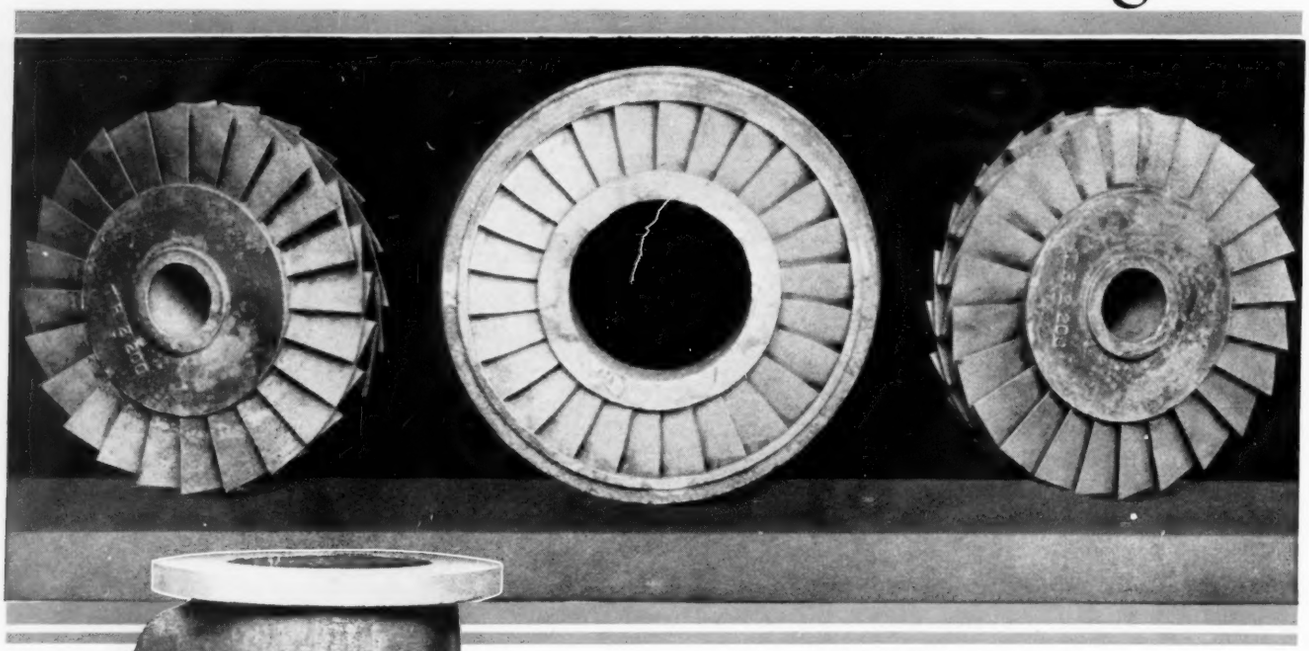


Unretouched photograph of
a rough steel casting

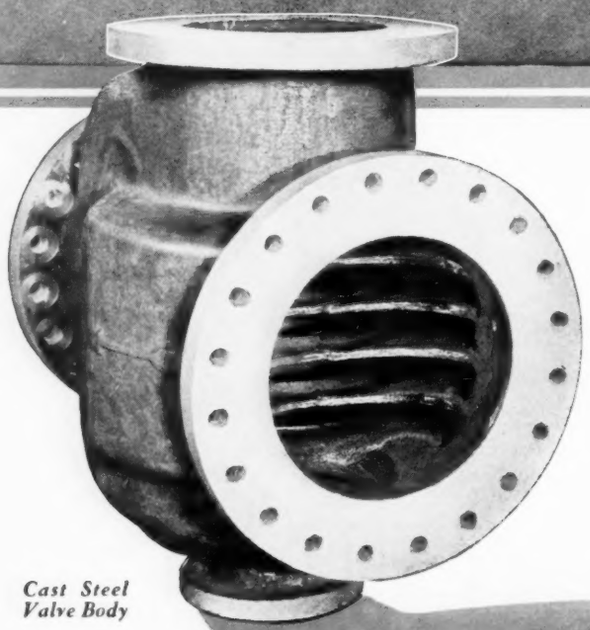
ATLAS STEEL CASTING COMPANY
Buffalo

TREADWELL

Electric Steel Castings



Wheels and Diaphragm with rolled steel blades cast in.



Cast Steel Valve Body

THE requirements of casting users are constantly changing with new designs or the creation of new products—weights must be cut without impairing safety factors—less expensive metals must be substituted which will still meet requirements for strength—machining costs must be kept at a minimum. Whatever the requirement, manufacturers that make TREADWELL their casting source have a complete engineering and founding service at their command equipped to produce the right casting for any job—whether in IRON, HI-TEST IRON, ELECTRIC STEEL or ALLOY STEEL of any analysis—a Treadwell engineer will be glad to discuss this service with you.

BETTER GRADE MACHINERY

Treadwell Engineering Company

Easton, Pa.

Rolling Mills—Threading & Cutting-Off Machinery

Special Machinery—Iron & Steel Castings

Vol. 88, No. 6, Feb. 5, 1931, issue of STEEL, published weekly at Cleveland, O. Entered as second class matter at the post office, Cleveland, O., under the act of March 3, 1879. Subscription $6 a year in U. S. and Canada; foreign £2:0:0; single copies, 25c.

STEEL

PRODUCTION

PROCESSING

DISTRIBUTION

USE

EDITORIAL STAFF
E. L. SHANER
Editor

ASSOCIATE EDITORS
E. C. BARRINGER — E. F. ROSS
A. J. HAIN — J. D. KNOX
G. H. MANLOVE — W. H. LLOYD
GUY HUBBARD

New York
E. C. KREUTZBERG — B. K. PRICE
H. R. SIMONDS

Pittsburgh — W. G. GUDE
Chicago — F. B. PLETCHER
Washington — L. M. LAMM
London — VINCENT DELPORT

ADVERTISING STAFF
G. O. HAYS
Business Manager

New York
J. F. AHRENS — E. W. KREUTZBERG

Pittsburgh
S. H. JASPER — C. B. HUMPHREY

Chicago
L. C. PELOTT — C. A. WARDLEY

Cleveland
JOHN HENRY — R. C. JAENKE

F. F. LIGHT, *Circulation Manager*

CONTENTS

February 5, 1931

THIS WEEK IN STEEL 21

Steel Executives Adhere to No-Wage-Cut Policy 23
Treasury Finds No Dumping of Soviet Manganese 25
Bethlehem, Other Producers Report Losses 27
Iron Output Makes First Gain in Eight Months 29

Industrial Men in the Day's News 30
Obituary 31
Here and There in Industry 32
Mirrors of Motordom 33

EDITORIAL—Industry's Obligation to the Community 34
Sanity in Time of Peril Is Safeguard Against Disaster 35
Nation's Latent Buying Power Ready To Come Into Action—
By George M. Verity 37
THE BUSINESS TREND 38

Radial Engines Produced in Modern Plant 43
Pacific Coast Harbors Open Market for Steel Piling 48
Large Uses of Steel in Small Ways—Typesetting Machines 52
Modern Refractories Meeting Increased Service Demands 54
Determines Inclusions in Steel by New Method 57
Steel Founders in Annual Meeting Review Progress 58
Electric Gage Provides Speed, Accuracy of Measurement 61
Height of Present Skyscrapers Will Be Exceeded 63
Scanning the Technology of Steel 67
Machine Tools and Plant Equipment 69

MARKET SUMMARY 85
MARKET REPORTS AND PRICES 86-114
CONSTRUCTION AND ENTERPRISE 116
NEW TRADE PUBLICATIONS 120
WHERE-TO-BUY DEPARTMENT 123
ADVERTISERS' INDEX 156

STEEL is published every Thursday by PENTON PUBLISHING CO., Penton Building, Cleveland, O. C. J. STARK, President; J. D. PEASE, Vice President; F. V. COLE, Secretary. Member, Audit Bureau of Circulations; Associated Business Papers Inc., and National Publishers Association. Branch Offices: New York, 220 Broadway; Chicago, Peoples Gas building; Pittsburgh, Oliver building; San Francisco, Alto building; Washington, National Press building; Cincinnati, Schmidt building; London, Caxton House, Westminster, S. W. 1.; Paris, 9 Rue de Londres; Berlin, Dahlmerstrasse 64 A, Lichterfeld-West. Subscription in the United States, Canada, Cuba and Mexico $6 per year; in Great Britain and European countries £2:0:0.

Entered as second class matter at post office at Cleveland under the Act of March 3, 1879.

Copyright 1931 by the Penton Publishing Co.

When You Need Steel — Call Ryerson

More Than 10,000 Sizes, and Kinds of Steel Products in Stock

HERE are huge stores of steel that offer unusual possibilities for concentrating purchases and thus saving time, trouble and money. The diversity of stocks, the wide range of sizes carried, with prompt service assured, provides an economical source for those following the generally accepted current buying method. You will find many advantages in grouping orders for immediate shipment from your nearest Ryerson Steel-Service Plant.

Bars	Sheets, Full Finished	Strip Steel	Forging Bars	Allegheny Metal
Structurals	Refined Iron	Boiler Tubes	Babbitt Metal	Concrete Rein.
Rails	Turned Ground and	and Fittings	Billets	Firm Tread Plates
Plates	Polished Shafting	Rivets and Bolts	Tool Steel	Small Tools
Sheets, Blk. & Galv.	Screw Stock	Welding Rod	Alloy Steel	Machinery, etc.

Write for the Ryerson Journal and Stock List—
"Key to Immediate Steel"

JOSEPH T. RYERSON & SON INC.

Plants: Chicago, Milwaukee, St. Louis, Cincinnati, Detroit, Cleveland, Buffalo, Boston, Philadelphia, Jersey City

Representation in: Minneapolis, Rockford, Kansas City, Tulsa, Houston, Dallas, Newark New York, Denver, Los Angeles, San Francisco

RYERSON

STEEL-SERVICE

Volume 88 Number 6

STEEL

For forty-eight years—IRON TRADE REVIEW

PRODUCTION ◆ PROCESSING ◆ DISTRIBUTION ◆ USE

This Week in Steel

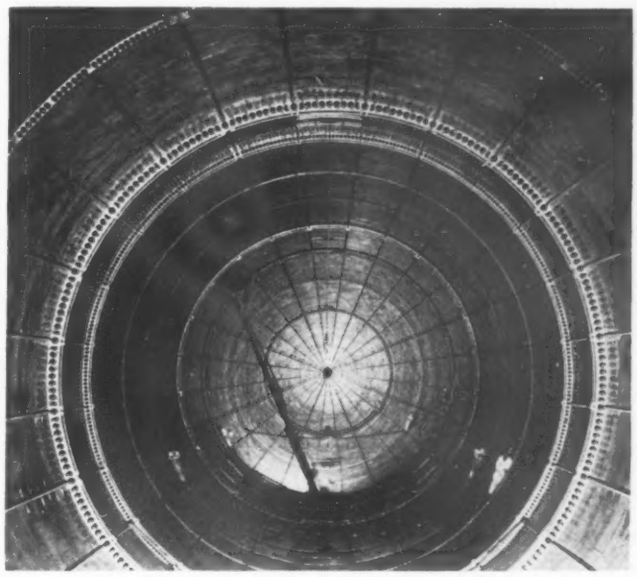
THERE being no longer any doubt that the patient will recover, the specialists are assembled at the bedside, debating with almost brutal frankness whether to let the patient muddle through, to operate and expedite the convalescence, or to probe for the cause of the distress and make reasonably certain there will be no recurrence. The patient, of course, is business. An alliterative economist gazes into his crystal (Page 35) and sees the Fatalism that a depression must run its course and the Faddism of applying nostrums vanquished only when Facts—economic facts—are recognized. A Chicago banker who usually merits an audience is insistent (Page 24) that wages must be synchronized with prices and rise and fall with them. A steel executive who sometimes is prophetic likens the course of business to the tides (Page 37), observing that the flood tide of prosperity is usually three to four times as long as the ebb tide of depression and expressing confidence that low inventories, cheap money and consumption exceeding production will shortly rouse latent buying power. Important executives of the steel industry are unanimous that the economic situation demands that wage rates be maintained, contending that labor has taken enough grief through curtailed employment and that any reduction would only initiate another noxious cycle (Page 23). This is not to say, of course, that the steel industry is not retrenching or getting more service today per dollar of payroll, but base rates are being maintained.

Relief from Congress Is Real Need

It may be a hopeful sign that business is willing to diagnose itself publicly, but whatever cheer is derived therefrom is vitiated by the increasing anxiety over the congressional situation. Little that is constructive apparently may be expected. It was believed that business was immune to anything congress might do, but the withdrawal of Democratic co-operation, the more real specter of a special session, and the Democratic insistence upon a relief program which might reach three billion dollars have shaken even the Liberty bond issues. What makes business apprehensive is the practical certainty that even a compromise on this six-point relief program will necessitate an increase in federal taxation. Washington business news (Page 26) becomes increasingly important. . . . A gesture of co-operation has been extended by steel founders (Page 58) in naming a committee to confer with congress relative to the profit situation in industry.

Russia Acquitted on One Count

Russia casts a red shadow across industrial and congressional news this week. The decision of the treasury department (Page 25) that the soviet government is not dumping manganese ore in the United States, as maintained by steel interests using the ore, will no doubt intensify the pressure in congress for a blanket embargo on Russian imports. . . . A congressional com-



Wide World Photo

Steel rings riveted to the frame and carrying the shell make possible this all-metal navy dirigible. Experiments with a still larger dirigible of this type will be made if congress authorizes $200,000. The above is an interior view, looking toward the bow.

mittee is waiting upon Secretary Mellon urging him to take advantage (Page 25) of the forced labor clause of the tariff law and issue such an embargo. . . . Meanwhile, a cargo of South African manganese ore has been unloaded at Baltimore (Page 100). . . . So stolid an organ as the *London Times* is disquieted, fearing success of the Russian 5-year plan and a flooding of world markets with cheap Russian articles.

Market Indicators Point Upward

No discouragement, however, is evident in this week's iron and steel market news. Pig iron production in January is disclosed as 3 per cent higher than December, the first improvement since April (Page 29). . . . Steel buyers display a shade more interest in most products and many users are more interested in prompt delivery than in trying to whittle prices down (Page 85). . . . Recurring rumors that Bethlehem Steel is to take over a number of structural fabricators are reminiscent of 1922, when the seven-company merger excited great interest. . . . Bethlehem, incidentally, reports that in the eight years in which it has offered stock to employes on advantageous terms 25,000 have bought (Page 26). . . . Railroads are closing in on pipe lines in their competitive battle, a bill introduced in congress aiming to designate the lines as common carriers and thus prohibit the transportation of products of controlled properties (Page 26).

Eventually They Come Down To Steel

Even New York's latest pride—the Empire State building—may be dwarfed soon. Structures 1200 feet tall (Empire State's 1248 feet include a 200-foot mooring mast) already are being considered, it was stated at the annual meeting of the American Society of Civil Engineers (Page 63). The taller the building the more important the wind bracing, for the pull of a dirigible in a heavy wind 1200 feet above ground is something to worry about. . . . Sky harbors, however, have no monopoly on the use of steel. West coast cities, turning their faces to the water, are in an era of port building (Page 48), but while this seems to open a broad market for steel piling it also attracts German competition. . . . This intensified water competition is one of the chief arguments for railroad consolidation. Thus far the proposed grouping of eastern carriers into four main systems has not come officially before the interstate commerce commission, but both group and individual applications are due soon (Page 24).

Millionths Now Make a Difference

The commerce commission, it is expected, will scrutinize the consolidation proposal with a sharpness approximating that of an electric gage devised by an eastern electrical manufacturer, capable of checking inside and outside diameters down to 0.00001-inch and indicating variations on an ammeter (Page 61). Adaptable to mass production, the gage has bearing surfaces of tungsten carbide and a diamond contact point. . . . Accuracy of this degree is dogma in the production of radical aircraft engines, for the manufacture of which a new plant has been completed in Connecticut (Page 43). Utmost care and accuracy are demanded in the machining and assembly of these motors and numerous special machining and grinding operations have been developed. . . . Few machines are so delicate as a typesetting machine, into which go 200 to 300 pounds of steel (Page 52) and a valet is required for a battery of them.

Outlook for Long Pull Is Not Dimmed

Not even the parade of financial deficits for the fourth quarter of 1930—Bethlehem Steel and others joining the procession this week (Page 27)—can mar the outlook for the long pull. Manufacturers of wire screen cloth, confident of better times ahead, have organized an institute to pool their promotional efforts (Page 24). . . . Ornamental ironworkers did a business approximating $250,000,000 in bleak 1930, and believe a still broader market awaits them (Page 26). . . . More eastern states are looking to their steel requirements for 1932 automobile tags, the amounts at least equaling 1931 needs (Page 24). . . . Henry Ford continues to perfect his 8-cylinder car, but there is some reason for believing he may not introduce it before midyear (Page 33). Detroit automobile interests are making progress slowly, but believe that after bridging February the road will be clearer. . . . Premier Bennett, of Canada, and James A. Farrell, president, United States Steel Corp., chatted Monday, presumably on a resumption of work on the Corporation's Canadian works at Ojibway, but nothing was announced (Page 28). . . . In pensions the Steel corporation in 1930 paid $4,359,445 (Page 24).

Elusive Inclusions Are Being Tamed

A means for determining the amount of inclusions in steel has long been an objective of metallurgists and open-hearth furnace operators. Such a method has now been developed (Page 57) and some remarkable results have been obtained in separating the nonmetallic particles, counting them and charting the results in a minimum of time. . . . Greater demands were imposed upon refractories during 1930 due to the reduced demand for steel and the consequent shutting down of some furnace units and the forcing of others. Monolithic refractory construction in forging and heating furnaces is a trend which has furnished an outlet for chromite ore in sizable amounts. Important developments are said to be pending in magnesite refractories (Page 54).

Steel Executives Adhere to No-Wage-Cut Policy

IMPORTANT executives in the iron and steel industry still are agreed in their statements that wage rates should not be reduced, though they have passed through a year of diminished earnings.

They appear more strongly confirmed in their original policy, and believe with James A. Farrell, president, United States Steel Corp., that if the spring of 1930 was a poor time to reduce rates the present is even worse, making the business recovery all the more difficult.

Comments in agreement with Mr. Farrell have followed his address to the National Canners' association in Chicago, Jan. 19, when he said:

"The relief given to the unemployed, and the general adherence to the payment of fair wages prevailing throughout industry have undoubtedly hastened the recovery which is impending. . . There are some who urge a reduction in wages corresponding to the drop in prices, who affect to believe that such a liquidation of labor would hasten a return to normal conditions. Apparently those who advocate this solution have not stopped to weigh the implication; that instead of tending to increase consumption of our industrial and agricultural products such wage reductions must inevitably reduce the purchasing power of the wage earners and restrict consumption. It is my deliberate judgement that a general reduction of wages in this country instead of relieving the situation would set back the impending recovery by at least two years."

E. G. Grace, president, Bethlehem Steel Corp., in presenting his annual report to stockholders last week said:

"It is my hope and expectation that wage rates in the steel industry will be maintained. It has been the policy of the Bethlehem Steel Corp., not to alter the rates of pay. The working man is contributing his share in the present situation by working on part time. He cannot take a cut both ways. We are maintaining working forces."

Other expressions on the wage rate situation have been received by STEEL, as follows:

«Farrell Right,»—E. T. Weir

I CONSIDER the matter of maintaining the existing standard of wages, not only in the steel industry but in all other lines of activity, of paramount importance. During the past year I have been very active in opposing any tendency toward wage reductions, because I do not believe there is any justification for reducing the earnings of the worker, whether he be in the mills, mines, factories or offices.

In my opinion labor has not been overpaid, even when working 100 per cent on the present schedule, and certainly now that so many of them are working on a reduced basis it is unthinkable to consider further reducing their earnings. I think the prosperity and growth of this country in the future is based on liberal earnings and where there can be a surplus over the ordinary living expenses. The only excuse that is ever given for reducing wages is to reduce costs. I consider this an antiquated principle, and that the modern conception is to reduce costs through securing greater efficiency and paying higher wages.

I entirely agree with Mr. Farrell that wage reductions now would retard business recovery for a minimum of two years, and that even following that period our prosperity would be minimized.

—E. T. Weir, chairman, National Steel Corp., Pittsburgh.

Steel Corporation's Rate Unchanged Since 1923

(Common Labor)

	Wages for 10 hrs.	Per cent advance	Per cent advance over 1915
1915	$2.00	....	....
Feb. 1, 1916	2.20	10	10
May 1, 1916	2.50	13.6	25
Dec. 15, 1916	2.75	10	37.5
May 1, 1917	3.00	9	50
Oct. 1, 1917	3.30	10	65
Apr. 16, 1918	3.80	15	90
Aug. 1, 1918	4.20	10.5	110
†Oct. 1, 1918	4.62	10	131
†Feb. 1, 1920	5.06	10	153
†May 16, 1921	4.05	*20	102.5
July 16, 1921	3.70	*8.6	85
Aug. 29, 1921	3.00	*18.9	50
Sept. 1, 1922	3.60	20	80
Apr. 16, 1923	4.00	11	100
††Aug., 1923	4.40	10	120

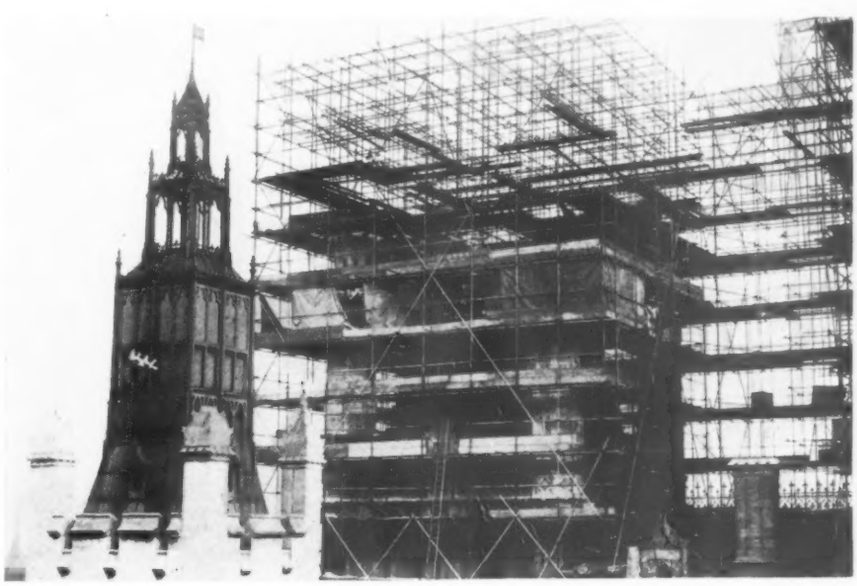
*Reduction.

†Basic 8-hour day in effect; time and one-half for overtime.

††Twelve-hour day abolished. Labor placed on 8-hour shift paid at rate of 50 cents an hour.

Girdler Favors Steady Rates

THE steel industry has successfully maintained wage rates throughout the depression, and I believe properly so. Certainly at this time many reduction in wages would be a backward step. Improvement in steel business is not to be had by reduction in prices which would surely result from wage reductions, but will come from increased activity, toward which the steel industry is contributing by its wage policy. In the past best results for everybody have been obtained with wages and prices at a fair level. Any recession now would retard progress



International News Reel Photo

STEEL AIDS REPLACING CRUMBLING STONE

Steel scaffolding envelops the tower above the royal palace, House of Lords, London, England. Fifteen years will be consumed by a permanent staff of workers in renovation and repair of the crumbling stonework, which was laid in 1840. Ravages of the London climate and a poor quality of stone have caused damage

at least until the present level could be regained.

—T. M. Girdler, chairman of the board, Republic Steel Corp.

John Follansbee «Firm»

WE ARE in favor of continuing wages upon the present basis, to permit the workmen and their families to maintain the standard of living to which they have been accustomed in recent year. We believe the same has contributed materially to the country's former prosperity and will hasten its return.

—John Follansbee, president, Follansbee Bros. Co., Pittsburgh.

Iron and Steel Employment Reduced in December

Washington—The number employed in 199 iron and steel plants in December was 228,494, a decrease of 1.5 per cent from the 231,881 employed in the same plants in November, according to the bureau of labor. Weekly payrolls dropped 2.7 per cent. Employment in 39 cast iron pipe plants was 8.1 per cent lower in December than in November, and payrolls also decreased 8 per cent. The reduction in December employment in 175 structural iron and steel plants was 1.3 per cent, and in payrolls, 0.6 per cent.

Steel Corporation's Pension Outlay $4,359,000 in 1930

The sum of $4,359,445.90 was distributed in 1930 as pensions to retired employes of the United States Steel Corp., from the United States Steel and Carnegie Pension Fund. The total paid since inauguration of the pension plan Jan. 1, 1911, is $30,625,546. Beneficiaries made no contribution, the income being derived from a fund created jointly by Andrew Carnegie and the Steel corporation.

The current report by administrators of the fund shows 1154 added to the pension roll in 1930 and 618 removed. Of the 13,694 retired from 1911 to 1930 inclusive 7956 were on the roll at the close of 1930. The average age of those retired in 1930 was 63.59 years; their average period of service was 34.51 years, and the average monthly pension, $55.70.

Says Wages Must Rise or Fall with Changing Markets

A wage scale responsive to either rising or falling markets is imperative, declared Melvin A. Traylor, president, First National Bank of Chicago, in a recent address at Dallas, Tex., in which he called for a conference representing labor, business, industry and the government to formulate a new national economic policy to check depression. Mr. Traylor said:

"Employers must be as quick to recognize the real wage in a rising market as labor must be to recognize a real wage in a falling market if there is to be any stability in prosperity and employment. Business cannot prosper if cost eliminates profits and labor cannot work as fully as it should if capital is denied a proper return."

Nothing Yet Before I.C.C. on Eastern Rail Mergers

Washington—Aside from the filing with the interstate commerce commission of a petition by the Baltimore & Ohio railroad for acquisition of the Chicago & Alton railroad, no action has been taken by eastern railroads in connection with the proposed 4-system consolidations. This action by the Baltimore & Ohio would have come anyway.

Differing expressions have reached Washington as to whether it will be a few weeks or a few months before the railroads present their consolidation case to the commission. There are also differing opinions whether the consolidations will be presented as part of a whole plan or each case individually.

Those who have watched this matter closely seem to think that within a very few weeks a plan will be forthcoming and that it will be supplemented by individual applications following the general plan. The only thing that the commission so far has received is an informal communication from eastern roads stating that an agreement has been reached and that definite plans will later be presented.

Makers of Wire Screen Cloth Form Institute

A majority of the more important factors in the production of wire screen cloth have formed the Wire Screen Cloth Manufacturers' institute. George E. Watson, former sales manager of the Wickwire Spencer Steel Co., with offices at 74 Trinity place, New York, is secretary.

Objectives of the new institute are to operate a trade extension bureau, collect and disseminate statistics, promote interests of the industry in manufacturing, safety, engineering, simplification, transportation and merchandising, promote standardization of wire screen cloth, and to endeavor to develop a uniform method of cost accounting.

Three Cooperate to Organize Canadian Equipment Firm

Toronto, Ont.—The Dominion Hoist & Shovel Co. is being formed jointly by the Dominion Bridge Co., Dominion Engineering Co. and American Hoist & Derrick Co. to manufacture in Canada construction and industrial machinery, including excavating shovels, locomotive and crawler cranes, revolving cranes, hoisting machinery and derricks. This results in part from the new tariff policy of Canada, which probably will influence the production in Canada of some types of machinery now imported.

The Dominion Bridge Co. also has entered into an agreement with the Steel Pipe & Lining Co. Ltd., headquarters of which are in Australia, to form the Hume Pipe Co. (Canada) Ltd. This company would have the exclusive right for the use of the Hume patents and processes in Canada covering manufacturing of concrete pipe with protective coating.

Fabrication-in-Transit for Milwaukee Shops

Both the Chicago & North Western and the Chicago, Milwaukee, St. Paul & Pacific railroads have adopted a fabrication-in-transit rate on steel shipments from the Chicago district to Milwaukee to meet competition of marine carriers and the effect of the recent increase in the all-rail rate from 9½c to 14½c per 100 pounds.

Under the new rate, steel is brought to Milwaukee from the Chicago area mills, fabricated into automobile frames, structural shapes, oil line pipe, etc., and sent to destination east or west at the rate from Chicago to destination, plus a small fabrication charge. Among the important users of the new rate is the A. O. Smith Corp., a principal maker of automobile frames, oil line pipe, etc., and probably the largest consumer of steel in the Milwaukee area.

More Eastern States Seek 1932 Auto Tag Steel

Eastern states continue to look to their 1932 automobile license tag needs.

New York has contracted with Wheeling Steel Corp., Wheeling, W. Va., for 454,900 strips of No. 24 gage strip steel, 13⅝ x 71½ inches, at $0.218 each, and 91,000 strips 16 x 68½ inches at $0.245 each. Both prices are delivered Auburn, N. Y.

Maryland has placed with Eastern Rolling Mill Co., Baltimore, 375 tons of No. 20 gage sheets for tags. Rhode Island takes bids in March or April;

last year its contract for 310,800 plates was filled by Grimm Stamp & Badge Co., St. Louis. District of Columbia in March will buy about 160 tons of sheets for its tags, to be made at the Lorton, Va., penitentiary.

South Carolina will buy its steel for tags about mid-year; last year it bought 125 tons of No. 24 gage sheets from Apollo Steel Co., Apollo, Pa.

Delaware expects to buy its tag steel about July 1.

Scrap Now International

International aspects of scrap iron and steel are being developed as the result of connections established by the Institute of Scrap Iron and Steel, New York, with associations of scrap iron dealers in foreign countries. An exchange of information is in effect now between the American institute and scrap dealers' associations in England, Germany and Italy. The Italian Fascist organization of scrap dealers, which recently sought information concerning the American scrap markets, was brought in touch with the institute of Scrap Iron and Steel, through the Italian embassy.

Names Scrap Committees

Members of the New Jersey Chapter of the Institute of Scrap Iron and Steel Inc., meeting at Newark, N. J., Jan. 26, authorized the appointment of three special committees to study and make recommendation with reference to compensation insurance, oxygen gas and business paper quotations. Abraham Isaacs, president of the chapter, presided. Benjamin Schwartz, director-general of the institute, delivered the keynote address.

To Discuss Direct Trading

Recent developments in connection with negotiations with a committee of the American Iron and Steel institute relative to direct trading in scrap iron and steel will be considered at a special meeting of the national executive committee of the Institute of Scrap Iron and Steel Inc. in New York, Feb. 4.

New Rates Effective Feb. 16

Washington—On request of the Central Freight association traffic bureau for modification of the third supplemental order in investigation No. 17,000, part 6, dealing with iron and steel articles, the commission Jan. 28 ordered "that the effective date of the order insofar as it pertains to pipe, plates or sheets not exceeding 4 feet in diameter" be modified to permit the carriers to establish rates in compliance with the order to become effective Feb. 16.

Treasury Finds Russian Manganese Ore Not Dumped

WASHINGTON — Domestic manganese producers have lost in their appeal to the customs service of the treasury department for a dumping order on Russian manganese ore.

"After a careful investigation," said Assistant Secretary of the Treasury Lowman, in charge of customs to a representative of STEEL, "the treasury department has not been able to find any dumping of manganese ore on the United States market."

Up to the time this is written, no official "no dumping" notice has been signed by Secretary Mellon, but Secretary Lowman's definite statement is taken as being the final word in the department's investigation prior to the actual signing of the order.

It is understood that domestic manganese manufacturers are now pinning their entire hopes on getting an embargo placed on all Russian goods into the United States which will have to be in the form of congressional legislation. It is not believed that there is any chance this will be done during the present session.

House Leaders Press for Embargo on Soviet Imports

Washington—Representative Hawley, chairman of the house ways and means committee, is chairman of a special committee to wait upon Secretary of the Treasury Mellon and urge him to utilize all possible federal means to check imports from Russia, especially pulpwood and lumber. The treasury department, under the tariff law, can embargo all imports made by forced labor.

It was regarded as significant here today that *The London Times* editorially sees a possibility of the soviet's 5-year program succeeding, and warns that the world may be flooded with cheap Russian goods, with great danger to other nations.

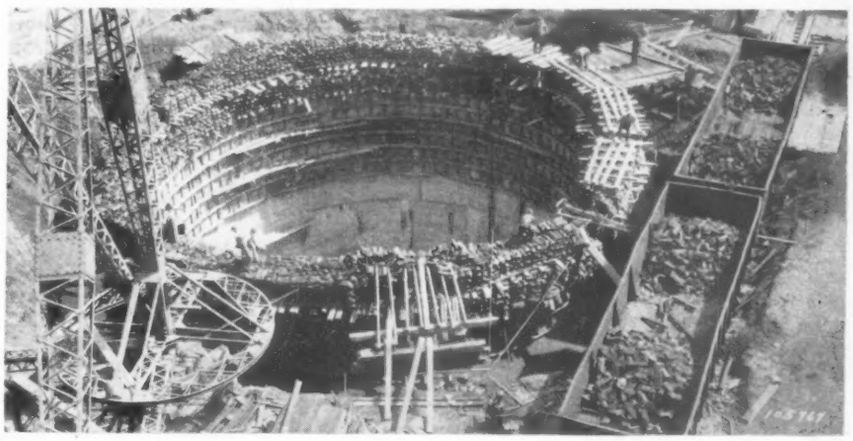
Will Fight Soviet Dumping

The joint conference on unfair Russian competition has decided to form an emergency committee composed of one representative from each industry to co-operate with J. Carson Adkerson, chairman of the conference and president of the American Manganese Producers association, to help expedite appeals for protection against dumping by Soviet Russia.

The conference has adopted a resolution commending Senator Oddie of Nevada, for his bill declaring an embargo on all imports from Russia.

Sees Large Russian Trade

In five years the United States could sell Russia $1,000,000,000 worth of goods annually, Hugh H. Cooper, American engineer supervising a Russian power project and representative of the American-Russian chamber of commerce, told the



THIS WELL LINING WILL NOT SINK

Piling 1200 tons of pig iron from the Ford blast furnaces on the top ring of this steel pump well lining at the Rouge plant failed to sink the cutting edge into hard pan 80 feet below. Engineers then knew it was on a solid foundation. The well connects with the two-mile water tunnel serving the Ford Motor Co.'s plant at Fordson, Mich. Construction of the tunnel was pictured in STEEL, *Jan. 29, page 13 with a photo showing hydraulic ram in action*

house ways and means committee last week. The treasury department's interpretation of present tariff restrictions on forced labor is sufficient to kill Russian trade, he declared.

May Develop Manganese

St. Louis—Eastern steel interests are reported investigating a manganese ore deposit near Cushman, Ark., with the view of developing the deposit. Sluicing is being considered, as is also a process which would raise concentrates from 30 per cent metallic manganese to 70 per cent.

Bethlehem Offers Employes More Stock; 25,000 Holders

Twenty-five thousand employes have become stockholders of Bethlehem Steel Corp. during the past eight years, according to E. G. Grace, president, announcing the 1931 employes saving and stock ownership plan. The investment of employes in Bethlehem stock totals $17,000,000.

Under the 1931 plan employes may purchase the 7 per cent cumulative preferred stock at $121 per share and pay for it over a period of 28 months, at $4 per share monthly. Though the offering price is $121 per share, the subscriber owns the stock outright after paying $109.10 per share in installments, as the dividends and $3 of the special benefits more than offset the 5 per cent interest on the unpaid balances during the installment period. Employes receive special benefits in addition to the $7 dividend, of $1 per share the first year, $2 the second, $3 the third, $4 the fourth, and $5 in the fifth year of their ownership of each annual issue.

Pay Quarter Billion for Ornamental Iron in 1930

Ornamental ironworkers did a gross business of $250,000,000 in 1930 in spite of the decline in building, according to William A. Boesche, president, National Association of Ornamental Iron, Bronze and Wire Manufacturers, of New York. Says Mr. Doesche:

"This leads to the expectation that 1931 will prove a good year for the industry since it is reasonable to assume that the past year would have meant a larger volume of business had conditions been normal."

Wheeling Mold Resumes

Wheeling Mold & Foundry division of the Continental Roll & Steel Foundry Co. has resumed operations at its Wheeling, W. Va., plant following a brief shutdown.

The Business Week in Washington

TREASURY investigation into imports of soviet manganese ore reveal nothing warranting an anti-dumping order, states Assistant Secretary of the Treasury Lowman, and an official statement to this effect is now looked for. A special house committee will urge Secretary Mellon to issue an embargo. In congress, an effort will be made to pass a law embargoing Russian imports. Senator Cutting has proposed recognition of Russia.

□ □ □

After more than eight years of effort the house of representatives has passed the so-called Capper-Kelly resale price bill. There is little chance of its passing the senate at this session.

□ □ □

Speaking before the conference on permanent preventives of unemployment, Senator Wagner, of New York, predicted that there will be unemployment insurance sooner than many anticipate.

□ □ □

Federal income tax collections in 1930 totaled $2,332,969,300, a decrease of $169,837,000 from 1929. Corporation taxes in 1930 were $1,242,595,700, a drop of $22,077,600, and individual taxes $1,090,372,600, a decline of $147,759,700.

□ □ □

It is not believed that the soldier bonus bill will become law before March 4, in spite of the drive being made. Either house of congress will probably delay the bill, or it will be passed by congress, vetoed by President Hoover and not passed over his veto.

□ □ □

Representative Hoch, of Kansas, has introduced a bill which would prevent oil pipe line companies from engaging in any business except that of a common carrier. This would apply to pipe lines the same restriction now governing railroads—that they dare not move coal produced in a controlled mine.

□ □ □

Under a recent decision of the United States Supreme Court the government will save some $100,000,000 in tax refunds, according to the department of justice. The treasury department will not have to make refunds in a large number of cases where the tax had been collected after the time limit against the government had run, the statement explained.

□ □ □

Conflict between President Hoover and congress over methods of relieving drought-stricken areas is intensified by refusal of house to vote $25,000,000 for relief, upholding President's stand. Democrats and liberal Republicans indicate determination to vote large sums for relief even if deadlock imperils appropriation bills and forces special session. Agitation for cashing soldier bonus certificates grows, despite warning by Secretary Mellon of cost involved and consequent weakening of bond market. It is estimated relief measures plus soldier bonus may cost treasury three billion dollars, with increased taxes mandatory.

In defense of his position in refusing the government's acceptance of a dole for drought relief and unemployment, President Hoover said, Feb. 3: "Business and unemployment would be very much benefited if congress would complete its work at this session rather than force an extra session."

Deeper Channels To Bring Larger Ore Carriers

Cleveland—United States government will deepen Great Lakes channels from Duluth to Detroit at an estimated cost of $76,000,000.

Already $26,000,000 has been appropriated, with $3,000,000 of this sum now in the engineers' hands for immediate use. The balance of the former named sum will be available after July 1.

Work will commence at the St. Mary's river channel in Detroit and proceed to Chicago, according to the schedule outlined to be completed for 1931. Channels will be deepened to 26 feet. For the entire program to be completed, which will involve an approximate $76,000,000, will require about eight years.

Effect of this deepening on ships, docks, slips, bridges, etc. will be sweeping. Lake ore and coal carriers can be built larger.

Forecasts Heavier Rails

To meet intensified competition the railroads of tomorrow will pull longer trains over heavier rails, with short hauls co-ordinated with motor traffic, Paul Shoup, president, Southern Pacific railroad, said recently at the San Francisco convention of the Associated General Contractors of America.

(Editor's Note: A. R. E. A. specifications list a 150-pound rail. Most railroads now are buying 110, 127 and 130-pound sections. Usual length is 30 feet, with 66 feet used for special work.)

Schedule Bar Meeting

California reinforcing bar fabricators will meet at Del Monte, Calif., Feb. 12 to 14, in connection with the meeting of the California Development association.

Bethlehem Earnings $5.26 in 1930; Gradual Recovery Seen

BETHLEHEM STEEL CORP., Bethlehem, Pa., incurred a deficit of $4,259,000 after declaring common and preferred stock dividends of $6,550,000 during the fourth quarter of 1930. This compares with a deficit of $2,766,575 during third quarter of 1930 after all charges.

Net income available for dividends in the fourth quarter was $2,291,000, equal to 17 cents a common share, after preferred charges. This compares with 63 cents during third quarter, and $2.75 a share during the fourth quarter of 1929. The accompanying table shows a comparison of earnings by quarters.

Total earnings for 1930 were $5.26 a share, compared with $11.01 in 1929, as computed on present capitalization. Gross sales and earnings in 1930 aggregated $258,979,253, in comparison with $342,516,207 for 1929. Total amount of new business booked during the year amounted to $242,755,425, compared with $369,536,888 in 1929.

Operations averaged 42.5 per cent of capacity during fourth quarter, 1930, against 54.6 per cent in the third quarter and 61.7 per cent for the entire year, compared with 91.8 per cent for 1929. Current operations are approximately 46 per cent.

Cash expenditures for additions and property improvements in 1930 amounted to $47,158,004. Cash and liquid securities as of Dec. 31, 1930, were $57,818,962 compared with $196,019,078, including cash reserved for the retirement of bonds, on Dec. 31, 1929.

Speaking of the outlook in general business, President Eugene G. Grace believed that there would be a gradual improvement throughout the year. The first half, he believed, would unquestionably be less active than the first six months of last year. He said that the company expected to maintain wage rates.

"Steel workers have already taken enough of a cut in reduced working hours. They can't take it both ways," he declared.

Buying, Mr. Grace said, is of a general character, with no special activity in any one line. Buying indicates definitely that stocks are low at consuming plants in general.

Mr. Grace expects an increase in the company's average billing price in the current quarter. For fourth quarter of 1930 billing prices averaged $6.10 less than in the fourth, or corresponding quarter of 1929, and for the entire year of 1930 the average was $5.03 less than for the preceding year.

Sheet & Tube Net Is $5.17

Youngstown Sheet & Tube Co., Youngstown, O., reports net income in 1930 of $7,036,132, equal to $5.17 a share. This compares with net of $21,564,174, or $17.28 a share in 1929, and $9.53 a share in 1928. Common stock dividend requirements are $5 annually.

National Steel Earns $4.05

National Steel Corp., Pittsburgh, reports net profit of $8,615,597 for 1930 after all charges and taxes. This is equal to $4.05 a share on the average number of shares outstanding during the year and $4.01 a share on shares as of Dec. 31, 1930.

Company reported net of $12,573,683, equal to $6.07 a share in 1929. Great Lakes Steel Corp. subsidiary earnings did not benefit National Steel Corp. total materially since it did not begin operations until late in the year.

□ □ □

United Engineering & Foundry Co., Pittsburgh, will show net earnings for 1930 of approximately $2,000,000, which will compare with actual net for 1929 of $1,671,887. Not only were earnings higher in 1930, but net applicable to common will be higher than in 1929. Relation of cash to total assets has been increased and inventories reduced in 1930.

Company has declared regular dividend of 40 cents and an extra dividend of 35 cents a share on common as well as the regular quarterly dividend of $1.75 a share on preferred stock, all payable Feb. 13 to record Feb. 3.

□ □ □

Jones & Laughlin Steel Corp., Pittsburgh, has declared quarterly dividend of $1 on common stock placing the issue on a $4 yearly basis, against $5 previously. Dividend is payable March 2 to record Feb. 13.

□ □ □

Virginia Iron, Coal & Coke Co., Roanoke, Va., reports net operating profit of $73,970 for fourth quarter of 1930 after loss for prior three quarters of the year. Net loss for the 12 months ended Dec. 31, 1930, was $36,531.

□ □ □

Colorado Fuel & Iron Co., Denver, has declared regular quarterly of 25 cents payable Feb. 25 to record Feb. 10. Dividend will be paid from surplus.

□ □ □

National Steel Corp., Pittsburgh, application to list 60,625 additional no par shares on the New York stock exchange has been authorized by the exchange. National will pay $6,062,500 in notes, bonds or debentures, $3,031,287 in cash, and 60,625 shares of stock for Michi-

Bethlehem's Financial Statement for Fourth Quarter and 1930

	Fourth quarter 1930	Third quarter 1930	Fourth quarter 1929	Year, 1930	Year, 1929	Year, 1928
Total income, including subsidiaries	$7,418,383	$8,943,217	$16,444,519	$45,233,664	$67,469,245	$43,521,136
Less interest charges	1,628,090	1,636,267	2,904,419	7,172,517	11,217,180	11,276,879
Balance	5,790,293	7,306,950	13,540,100	38,061,147	56,252,065	32,244,257
Less depreciation, depletion and obsolescence	3,499,293	3,523,525	3,493,903	14,217,741	14,009,085	13,658,335
Net income	2,291,000	3,783,425	10,046,197	23,843,406	42,242,980	18,585,922
Preferred	1,750,000	1,750,000	1,750,000	7,000,000	7,000,000	6,842,500
Common	4,800,000	4,800,000	4,800,000	19,200,000	15,600,000	1,800,000
Total	6,550,000	6,550,000	6,550,000	26,200,000	22,600,000	8,642,500
Surplus for Period	*4,259,000	*2,766,575	3,496,197	*2,356,594	19,642,980	9,943,422

*Deficit.

gan Steel Corp., Detroit, recently purchased.

□ □ □

Bucyrus-Erie Co., Milwaukee, has declared regular quarterly of 25 cents a share, 62½ cents on convertible preferred and $1.75 on preferred stock, all payable April 1 to record Feb. 20.

□ □ □

Sivyer Steel Casting Co., Chicago, and Milwaukee, reports net profit for the year ended Dec. 31, 1930, $81,000, after all charges including federal taxes, equal to $1.01 a share. This compares with $356,046, or $4.45 a share, in 1929. Dividends paid in 1930 aggregated $127,048.

□ □ □

Canadian Car & Foundry Co. Ltd., Montreal, Que., has declared regular quarterly of 44 cents, payable Feb. 28 to record Feb. 14.

□ □ □

Caterpillar Tractor Co., Peoria, Ill., for 1930 showed net profit of about $8,000,000, after taxes and charges, equal to $4.25 a share. This compares with 1929 net of $11,600,445, or $6.15 a share. It is expected that regular quarterly of 75 cents a share will be declared.

□ □ □

Follansbee Bros. Co., Pittsburgh, has taken no action on common dividend due at this time. Three months ago 25-cent payment was made.

□ □ □

American Radiator & Standard Sanitary Mfg. Co., New York, has declared regular 25-cent quarterly dividend, payable March 31 to record March 16.

□ □ □

Minneapolis-Honeywell Regulator Co., Minneapolis, for the year ended Dec. 31, reports net income of $961,954, after all charges and taxes, equal to $5.06 a share. This compares with $1,437,525, or $7.98 a share, in the preceding year. Net sales last year amounted to $5,272,068, as compared with $6,233,395 in 1929.

□ □ □

Briggs Mfg. Co., Detroit, application to list 2,025,000 shares of no par common on the Detroit stock exchange was approved Jan. 20.

□ □ □

Gulf States Steel Co., Birmingham, Ala., reports net loss of $815,334 for 1930 against net profit of $1,310,301, or $5.92 a share, in 1929. In the quarter ended Dec. 31 company had net loss of $614,046 against net profit of $223,440 or 95 cents a share in the like 1929 period.

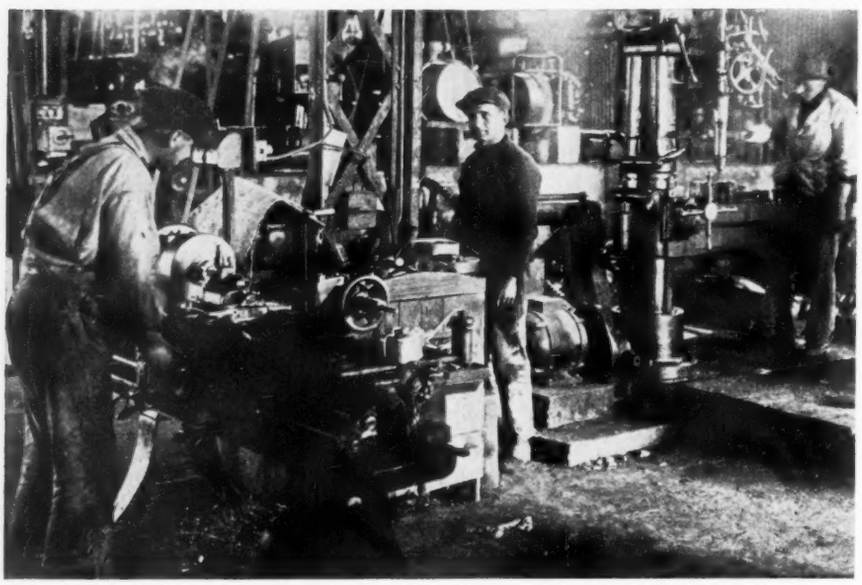
□ □ □

Warren Foundry & Pipe Co., Phillipsburg, N. J., report 1930 net profit equal to $2.28 a share on 182,000 shares excluding 68,000 shares held in the treasury. This compares with $1.47 on 199,300 shares in 1929.

Farrell and Bennett Confer

New York—James A. Farrell, president, United States Steel Corp., and Premier Bennett of Canada conferred here Feb. 2. The latter was in New York on a brief visit on the way home from Washington.

The character of the discussion was not revealed. It has been rumored last week that Premier Bennett's intended conference with Mr. Farrell might be relative to the Steel corporation's development of its subsidiary plant, Canadian Steel Corp., Ojibway, Ont.



—*Wide World Photo*

MODERN MACHINERY INVADES THE HOLY LAND

In diverting the River Jordan for a huge power project it has been necessary to construct and equip machine shops and to train native workers to help in their operation. Modern lathes, drill presses and other units have been installed as the front line of attack on a great construction problem

British Will Make Pittsburgh Mill Equipment

An unstated mill in the Pittsburgh district has placed an order for machinery to make weldless steel tubing with Wellman, Smith & Owen Engineering Corp., Darlaston, Staffordshire, England, which obtained the business over American and German competition. Contract is reported large enough to afford work to 500 or 600 British employes for a year's time.

Authorizes Plant Extension

Contracts for an enlargement program at its Canton, O., plant have been let by the United Engineering & Foundry Co., Pittsburgh. The work includes the extension of all buildings on the west. The storage building is to be extended 300 feet, the foundry will be raised to connect with the other buildings and a 360-foot leanto erected. A new open-hearth furnace will be installed, another rebuilt and additional equipment added. Production of the plant includes rolls including large size rolls for 4-high mills, roll castings and machine work on steel castings.

Reaffirm Fencing Practice

Washington—Alexander B. Galt, division of simplified practice, bureau of standards, is notifying distributors, users and manufacturers of woven wire fencing that the simplified practice recommendation has been reaffirmed by the standing committee "without change, for a period of one year."

Statement says further that, "a survey conducted prior to the revision meeting indicated that the degree to which acceptors were adhering to the recommendation was approximately 98 per cent."

Highway Officials To Meet

The seventh annual convention of the Association of Highway Officials of the North Atlantic States will be held at Atlantic City, N. J., Feb. 18-20. Headquarters will be at the Hotels Ambassador and Chelsea. A. Lee Grover, secretary, State Highway commission of New Jersey, Trenton, is secretary-treasurer of the association.

To Buy Signs for Sheets

South Carolina, through James N. Pearman, superintendent of the penitentiary at Columbia, expects later in the year to buy galvanized sheets for road signs. Last year it bought 160 tons of No. 16 gage from Youngstown Sheet & Tube Co., Youngstown, O.

Iron Production in First Gain in Eight Months

FOLLOWING an eight-month period in which production of coke pig iron moved steadily downward, the first month of the new year made a slight upturn. Although the improvement was not great, it is significant that both output and number of operating furnaces pointed upward. Stack operations had declined without interruption for nine months, during which time 89 units had become inactive.

Total production in January was 1,712,919 gross tons, a figure which was 47,204 tons, or 2.8 per cent, better than the 1,665,715 tons made in December. Both January and December were 31-day months. However, output still is far below normal levels—in January one year ago production was 2,838,751 tons and in January, 1929, it was 3,433,028 tons, the latter being an all-time January record.

Average January daily production was 55,255 tons, compared with 53,732 tons in December, the gain amounting to 1523 tons per day, or 2.8 per cent. The rate for January, 1930, was 91,573 tons and for January, 1929, it reached 110,742 tons.

AVERAGE DAILY PRODUCTION

	1931	1930	1929	1928
Jan.	55,255	91,573	110,742	92,113
Feb.	.....	101,640	114,942	99,954
Mar.	.....	104,930	119,662	103,199
Apr.	.....	106,371	122,106	106,066
May	.....	104,564	125,753	106,219
June	.....	97,817	123,887	102,745
July	.....	85,110	122,016	99,120
Aug.	.....	81,455	120,845	101,193
Sept.	.....	75,893	116,548	102,120
Oct.	.....	69,851	115,747	108,824
Nov.	.....	62,182	106,081	110,155
Dec.	.....	53,732	91,513	108,702
Ave.	.....	86,141	115,808	103,365

MONTHLY PRODUCTION

	1931	1930	1929
Jan.	1,712,919	2,838,751	3,433,028
Feb.	.....	2,845,937	3,218,376
Mar.	.....	3,252,822	3,709,518
April	.....	3,191,119	3,663,167
May	.....	3,241,477	3,898,344
June	.....	2,934,508	3,715,104
July	.....	2,638,441	3,782,511
Aug.	.....	2,525,105	3,746,198
Sept.	.....	2,276,781	3,496,454
Oct.	.....	2,165,374	3,588,146
Nov.	.....	1,865,415	3,182,420
Nov.	.....	1,865,458	3,182,420
Dec.	.....	1,665,715	2,836,917
Total	.....	31,441,488	42,270,183

Average daily production still remains the lowest since January, 1922, when the rate was 53,090 tons.

Relating production to potential capacity, operations in January represented 39.2 per cent, against 38.1 per cent in December, 44.1 per cent in November, 65 per cent in January a year ago and 79 per cent in January, 1929.

Total operating blast furnaces on Jan. 31 was 102, compared with 95 on Dec. 31, and 107 on Nov. 30. Of the 7 furnaces resuming activity in January, 6 were of nonmerchant or steelworks classification and only 1 was merchant. No merchant furnaces were blown out, while of the nonmerchant group, 5 were blown out and 11 blown in.

With the abandonment of Cambria B furnace of the Bethlehem Steel Co. at Johnstown, Pa., the country's total number of stacks is reduced from 310 to 309.

Stacks blown in during January were: In Ohio: Youngstown A and D and one Hubbard, Youngstown Sheet & Tube Co.; United, Republic Steel Corp.; Trumbull Cliffs, Trumbull Cliffs Furnace Co. In Pennsylvania: Cambria G, Bethlehem Steel Co.; one Monessen, Pittsburgh Steel Co. In Maryland: One Maryland, Bethlehem Steel Co. In Alabama: Ensley Nos. 3 and 6, Tennessee Coal, Iron & Railroad Co. In Illinois: South Works E, Illinois Steel Co.; one South Chicago, Wisconsin Steel Co.

Included in the stacks blown out were: In Ohio: One Ohio, Carnegie Steel Co. In Pennsylvania: Cambria K, Bethlehem Steel Co.; Carrie No. 3, Carnegie Steel Co. In West Virginia: One Riverside, Wheeling Steel Corp. In Minnesota: One Duluth, Minnesota Steel Co.

JANUARY PIG IRON PRODUCTION

	No. in blast last day of month		Total tonnage made	
	Jan.	Dec.	Merchant	Nonmerchant
Ohio	21	17	53,605	273,622
Pennsylvania	32	32	43,330	463,800
Alabama	10	8	68,424	81,755
Illinois	12	10	92,985	115,580
New York	5	5	41,669	43,562
Colorado	2	2		
Indiana	7	7		
Maryland	3	2	7,650	260,203
Virginia	1	1		
Wisconsin	0	0		
Kentucky	1	1		
Massachusetts	1	1	23,121	76,721
Tennessee	1	1		
Utah	1	1		
West Virginia	2	3		
Michigan	3	3		
Minnesota	0	1	15,557	31,149
Missouri	0	1		
New Jersey	0	0		
Spiegel and ferro, all states			9,090	11,096
Total	102	95	355,431	1,357,488

RATE OF OPERATION

(Relation of Production to Capacity)

	1931†	1930†	1929*	1928‡
January	39.2	65.0	79.0	66.8
February	.....	72.1	82.2	72.5
March	.....	74.5	85.5	74.8
April	.....	75.4	87.4	76.8
May	.....	74.2	89.8	77.0
June	.....	69.3	88.5	74.4
July	.....	60.3	87.2	71.8
August	.....	57.8	86.4	73.3
September	.....	53.8	83.3	74.1
October	.....	49.6	82.6	78.9
November	.....	44.1	75.8	79.8
December	.....	38.1	65.5	78.8

†Based on capacity of 51,490,790 tons Dec. 31, 1929; *on capacity of 51,069,895 tons; ‡on capacity of 50,329,750 tons. Capacities by American Iron and Steel institute.

Steel Plates Fall to Low for Past Two Years

Fabricated steel plate new orders in December were 20,594 tons, based on reports to the census bureau. This figure is the lowest for two years. Losses were accountable in gas holders, oil storage tanks, and tank car classifications. Plates for refinery materials and equipment showed a gain. Totals for 1930 show orders aggregating 386,519 tons against 1929's 513,065 tons. Comparisons follow:

1929	Total	Oil storage tanks	Blast furnaces	Stacks & miscellaneous
Dec.	23,535	3,669	1,529	13,166
(Year)	513,065	138,350	12,127	220,781
1930				
Jan.	50,076	7,432	1,042	15,168
Feb.	28,332	7,865	279	11,656
March	38,051	6,593	2,749	17,675
April	39,437	8,460	273	17,698
May	30,306	9,222	426	13,228
June	35,307	8,841	511	16,944
July	31,440	10,350	102	13,165
Aug.*	29,175	9,388	750	15,695
Sept.	33,602	14,106	514	12,084
Oct.	24,002	4,400	231	13,170
Nov.	26,137	9,401	179	9,631
Dec.	20,594	4,178	135	9,287
(Year)	386,519	100,736	7,191	166,401

*Revised.

Further statistics of the iron and steel industry will be found on page 79 of this issue.

Canada's Iron, Steel Output Suffers in 1929 Comparison

Toronto, Ont.—December production of pig iron in Canada was 38,293 gross tons, compared with 46,360 tons in November, or a decline of 17 per cent and less than one-

(Concluded on Page 79)

Industrial Men in the Day's News

J. T. Osler, President of Continental Roll & Steel Foundry Co., East Chicago, Ind.

CONCENTRATING on production of steel and iron rolls for steel mills, he also has paid particular attention to cost accounting and better marketing methods.

HIS business experience dates back to 1902, when he was employed in the engineering department of Riter-Conley Mfg. Co.

LEWIS Foundry & Machine, Standard Engineering, and Hubbard Steel Foundry in turn were his connections prior to the merger which formed the Continental company.

EXPERIENCE of more than 20 years in the casting of metals has brought J. T. Osler, president of Continental Roll & Steel Foundry Co., East Chicago, Ind., into intimate knowledge of the production of steel and iron mill rolls, and trends in the steel industry. Not only has he aided directly in the progress of roll manufacture, but he also is a leader in promoting accounting and cost plans, as well as better marketing methods in the steel foundry industry in general.

Mr. Osler became manager of sales in Pittsburgh for the Hubbard Steel Foundry Co. in 1915, and three years later was named works manager of its East Chicago foundry. Successively elected vice president and then president of his company, he was chosen president of the Continental Steel Roll & Foundry Co. when that organization was formed last year as a consolidation of Hubbard Steel Foundry Co., Duquesne Steel Foundry Co., Pittsburgh, and the Wheeling Mold & Foundry Co., Wheeling, W. Va.

A native of Shamokin, Pa., Mr. Osler started his career in 1902 in the engineering department of Riter-Conley Mfg. Co., Pittsburgh, where he held various posts in engineering work. In 1910 he became general superintendent of the Lewis Foundry & Machine Co., at Pittsburgh. Three years later Mr. Osler joined the staff of the Standard Engineering Co., Ellwood City, Pa., where he started that company in the iron roll business.

Mr. Osler is a member of the board of directors of the Steel Founders' Society of America Inc., and takes an active part in all activities of that organization. He also is a member of other technical groups in the industry. Mr. Osler occasionally likes to hunt and fish.

E. C. REBESKE, formerly treasurer of Union Drawn Steel Co., Beaver Falls, Pa., was named chairman of the board of directors of Penn Bridge Co., Beaver Falls, at a meeting Jan. 28. Maurice Grier was named president; C. A. White, vice president in charge of production; Lewis Vincent, vice president and chief engineer; W. W. Potts, treasurer; W. C. Musick, secretary and Homer H. Swaney, counsel.

These officers were also named directors. Two new board members were added, Mr. Rebeske and E. S. Hoopes, formerly president of Union Drawn Steel Co. Other directors are F. S. Callander and W. G. Negley.

□ □ □

Howard Butt has been made manager of the engineering and export department, with headquarters at 50 Church street, New York, of William Powell Co., Cincinnati, manufacturer of valves, engineering specialties, etc.

□ □ □

A. C. Morse retired Jan. 31 as chairman of the board of Ohio Seamless Tube Co., Shelby, O., remaining as a director, and has been succeeded by R. C. Skiles, attorney of Shelby, who has been vice president of the company. Mr. Morse has been connected with the business since the first seamless plant was established in Shelby by H. A. Lozier, and has been employed in numerous capacities. First he was a workman in the plant, then in turn, foreman, superintendent, president, general manager and finally board chairman.

The present directorate comprises Mr. Morse, Mr. Skiles, Judge Edwin Mansfield, president, H. H. Stoner, H. G. Hildebrandt, J. A. Anderson, F. L. Griffith, Clifford Skiles and W. W. Van Horn. The remaining officers are as follows: F. L. Benham, general manager, G. L. Reichert, secretary-treasurer, C. S. Watters, assistant secretary treasurer, C. H. Wood, manager of sales, S. D. Inscho, engineer, and B. V. Hollenbaugh, superintendent.

□ □ □

W. W. Hancock, formerly vice president of Donner Steel Co. Inc., Buffalo, was elected secretary of Republic Steel Corp., Youngstown, O., at a meeting of the directors Jan. 27. He fills the vacancy created by the recent resignation of Richard Jones Jr.

Mr. Hancock attended the University of Michigan and later became affiliated with William H. Donner at Donora, Pa. From 1912 to 1916 he was with Mr. Donner at the Cambria Steel Co. and when the Donner Steel Co. was formed in 1916 he was named

secretary and a director of that company, as well as being placed in charge of its ore department. He next was promoted to the vice presidency.

□ □ □

George T. Snyder, chief engineer, National Tube Co., Lorain, O., has been transferred to the engineering department at Pittsburgh.

□ □ □

Philip P. Brown, who formerly had charge of the steel department of Wilkoff Co., Youngstown, O., and who resigned on Jan. 15, has been succeeded by H. Dudley Jones.

□ □ □

Arthur Schaeffer, district sales manager in Detroit for Republic Steel Corp., Youngstown, O., is in South America and will return about Feb. 10.

□ □ □

L. B. Mead, formerly assistant industrial manager of the northwestern district of the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., with headquarters in Chicago, has been made industrial manager of the Chicago district.

□ □ □

W. C. Trout, formerly vice president and general manager, Lufkin Foundry & Machine Co., Lufkin, Tex., has been elected president, to succeed the late J. H. Kurth.

J. H. Kurth Jr. was made a vice president and member of the board of directors.

□ □ □

Edwin A. Jones, treasurer and general manager of Globe Iron Co., Jackson, O., was elected vice president Jan. 21 to succeed the late Moses Morgan. He also will continue as treasurer and general manager.

John E. Jones was re-elected president, and Charles P. Chapman secretary.

□ □ □

B. Howard Lester, identified with Perry, Buxton & Doane, Boston, scrap interests, for about 40 years, has resigned as vice president, the office held by him for several years. He has been succeeded by W. H. Lane, formerly of Portland, Me. Mr. Lester will announce his further plans after an extended rest.

□ □ □

J. H. Burns recently was elected vice president of McCarthy Bros. & Ford, Buffalo, jobbers to succeed Karr Parker, elected president as noted in STEEL of Jan. 15. J. A. Munhall was elected secretary, the other office formerly held by Mr. Parker. M. J. Diebolt was made secretary and Harris McCarthy a director.

□ □ □

Louis O. Klingelhofer, vice president, Pittsburgh Bridge & Iron Works, Pittsburgh, was also made treasurer at a meeting of the board of directors Jan. 27. H. N. Trimble was elected a

(*Concluded on Page* 95)

Obituaries

FRANK I. PEARCE, 86, last survivor of the original group which founded Link-Belt Machinery Co., predecessor of Link-Belt Co., Chicago, died Jan. 30 at Hollywood, Calif. Mr. Pearce was superintendent of Excelsior Iron Works, Chicago, when he joined with William D. Ewart and Edward A. Turner in the formation of Link-Belt Machinery Co. He was one of the pioneers in developing materials handling and power transmission equipment. In 1875 these three men and James M. Dodge formed Link-Belt Machinery Co., the Ewart Mfg. Co., and the Link-Belt Engineering Co., and these companies became Link-Belt Co. in 1906. Since that year Mr. Pearce had not been active in the company.

□ □ □

J. A. Bell, president of Capitol Steel & Iron Works, Oklahoma City, Okla., died recently.

□ □ □

J. J. Dues, 67, president and general manager of the Dues Machine Co., Minster, O., died Jan. 14.

□ □ □

Edward Gaskin, vice president and treasurer of Buffalo Marine Construction Corp., Buffalo, died recently.

□ □ □

Edward J. Murphy, identified with Houghton & Richards Inc., Boston steel importers, died Jan. 31 at Brighton, Mass.

□ □ □

James A. Morrison, 55, president of James Morrison Brass Mfg. Co., Toronto, Ont., died there recently.

□ □ □

Edwin Osgood, 85, for 40 years purchasing agent for Chicago & North Western railroad, died Jan. 29 at Oak Park, Ill.

□ □ □

Roland H. Grimm, 39, founder and owner of Grimm Foundry Co., Manitowoc, Wis., died Jan. 17. He also was owner of Grimm Oil Co.

□ □ □

Chauncey C. Place, retired, one of the founders of the Oswego Tool Works, Oswego, N. Y., died at his winter home in St. Petersburg, Fla., Jan. 27.

□ □ □

J. W. Kelly, 56, Pittsburgh manager for Jarecki Mfg. Co., Erie, Pa., manufacturer of valve fittings and pipe threading machines and distributor of oil well supplies, died Feb. 1 in Pittsburgh.

□ □ □

Lucian Sharpe Jr., 60, vice president of Brown & Sharpe Mfg. Co., Providence, R. I., died Jan. 28 in France. He was son of the founder of the company and entered its employ after he was graduated from Brown university in 1890.

□ □ □

James H. Hooker, 72, president for about 40 years of Sinker-Davis Co., Indianapolis, machinery and foundry plant, died recently at his home in that city. He started to work for the Sinker-Davis Co. as an errand boy, rising to the presidency in about 1890.

□ □ □

William D. Bartlett, 57, senior vice president of Thompson Products Co., Cleveland, manufacturer of valves, etc., died Jan. 30. With J. A. Krider and Charles E. Thompson he organized the company in 1902, then known as Electric Welding Products Co.

□ □ □

R. Francis Wood, 81, one time president of Cambria Iron Co., the forerunner of the present Johnstown, Pa., works of Bethlehem Steel Co., died Jan. 14 at Wayne, Pa. He was graduated from the University of Pennsylvania in 1869 and had been a member of the Philadelphia bar since 1871.

□ □ □

Philip Kempter, for many years works manager of the Geuder, Paeschke & Frey Co., Milwaukee, manufacturing stampings and enameled ware, died Jan. 26. Born in Galena, Ill., in 1867, he located in Milwaukee in 1898 to become connected with the Geuder company. He was active in it until July, 1930.

□ □ □

Frank H. Hamblin, 77, for nearly half a century treausrer of Hamblin & Russell Mfg. Co., Worcester, Mass., died Jan. 29. He with William T. Russell, of Wellesley, Mass., located in Worcester in 1883, purchasing the wire goods business established by Samuel Ayers as Ayers Mfg. Co. Mr. Russell became president and Mr. Hamblin treasurer.

□ □ □

Robert C. Nicholas, 55, senior partner, Nicholas & Miller, Chicago, pig iron and ferroalloys merchants, died Feb. 1. More than 40 years ago he commenced with Thomas A. Mack Sales Agency, Cincinnati. Joining Walter Wallingford & Co. at their organization, he represented them in Chicago for about 15 years. In 1926 he and J. W. Miller organized their company.

□ □ □

Charles F. Olin, 60, who was advertising manager for New Depart-

(*Concluded on Page* 81)

Here and There in Industry

H A. BRASSERT & CO., Chicago, consulting engineers, have booked several orders recently for blast furnace and steelworks equipment, as follows: Inland Steel Co., Chicago, has ordered a hot blast stove lining, 24 x 100 feet for No. 3 furnace and three for its No. 2 furnace; Inland also has ordered a Vincent air mixer for No. 4 blast furnace and another for No. 2 furnace; Hamilton Coke & Iron Co., Hamilton, O., has ordered a 3-rod automatic stock line recorder; Republic Steel Corp. has ordered alterations to convert its present washer at its Trumbull-Cliffs blast furnace plant at Warren, O., to higher efficiency; American Rolling Mill Co., Middletown, O., has ordered an automatic draft control for its plant at Butler, Pa.; Bethlehem Steel Co. has ordered plans for revamping a gas washer at Sparrows Point, Md., and another at Lackawanna, N. Y.

□ □ □

Pacific Iron & Metal Co., Seattle, has purchased the machinery, equipment, rolling stock, buildings and supplies of the Pittsmont Mining Co.'s smelter and mines at Butte, Mont. It is estimated that 20,000 tons of metal are involved. To handle this transaction a new corporation has been organized in Washington, the Machinery & Supply Corp. of America with headquarters in Seattle and selling offices in Butte. It is planned to sell what equipment can be salvaged, the remainder to be scrapped.

□ □ □

Engineering-Economics Foundation has moved its offices to 711 Boylston street, Boston.

□ □ □

Millers Falls Co., Millers Falls, Mass., and Goodell-Pratt Co., Greenfield, Mass., have been merged and details of the organization are being worked out.

□ □ □

Oxford Plastic Brick Co., Cambridge, O., has established sales and engineering service for northeastern Ohio at 890 Nickel Plate drive, Cleveland. J. G. Stone is district manager.

□ □ □

Truscon Steel Co., Youngstown, O., manufacturer of steel building products, has moved its Minneapolis offices from 611 Metropolitan Bank building to 354 Baker building.

□ □ □

Concrete Engineering Co., Omaha, Nebr., has leased a building of 10,000 square feet and an acre of land at 8219 Almira avenue, Cleveland, for fabrication, storage and sales of concrete reinforcing materials and other building supplies. C. J. Ward is district manager.

□ □ □

Union Iron Works, Erie, Pa., has received an order for two 200-horsepower boilers for an addition to the power plant of the Grove City, Pa., college. The company also has taken orders within the past week for six other large boiler units.

□ □ □

Tube-Turns Inc., Louisville, Ky., has appointed the New Orleans branch of the Lukens Steel Co., Coatesville, Pa., its distributor in Louisiana and southern Mississippi. The Lukens branch consists of a steel warehouse and fabricating plant.

□ □ □

Stacey Engineering Co., Connersville, Ind., which includes the Connersville Blower Co. Inc., P. H. & F. M. Roots Co., Wilbraham-Green Blower Co. and Stacey Bros. Gas Construction Co., has opened a branch office at 235 Montgomery street, Russ building, San Francisco, with E. A. McCallum as district manager.

□ □ □

Chapman Valve Mfg. Co., Indian Orchard, Mass., poured the first metal in its steel foundry addition Jan. 28. This addition practically doubles capacity. The plant, 75 x 578 feet, has been virtually rebuilt and equipped with oil burners, gear heating, mold drying and core ovens. It is served by two 15-ton cranes. Adolph W. Gilbert is manager.

□ □ □

Cleveland Stoker Co., Reuben Hitchcock president, 6545 Carnegie avenue, Cleveland, has established quantity production of its stoker, which controls combustion of soft coal in domestic heating furnaces, actuated by electric clock and thermostat. Fox Smith Sales Co., 1312 Citizens building, Cleveland, is its sales representative.

□ □ □

Duriron Co., Dayton, O., manufacturer of acid-proof metals, has its new steel foundry in full operation. It is producing chrome-nickel and chrome-nickel-silicon alloy steels, which have been added to its previous line. One of its new products in Durimet is a Y valve with several innovations, a removable and reversible valve seat, the lower part of the body removable and by turning 180 degrees becomes an angle valve and a full-floating valve disk, permitting a new seating each time the valve is used. In addition to Durimet the company is also casting the chrome-nickel Nirosta metals under the trade name Durco Nirosta.

□ □ □

Capitol Steel & Iron Co., Oklahoma City, Okla., has discontinued its branch offices at Amarillo, Tex., Tulsa, Okla., and Little Rock, Ark., effective Feb. 1. The company is booked several months ahead, the largest order being the 33-story First National Bank and Trust Co. building in Oklahoma City, which it shares with the McClintic-Marshall Co., Pittsburgh.

□ □ □

Ohio Steel Foundry Co., Lima, O., has completed facilities for the manufacture of carbon steel, alloy steel and electric steel rolls for the rolling mill industry. Trend of the steel industry westward gives the company the belief its location will permit close personal attention to requirements of roll users. J. E. Lawton, formerly with the Wheeling Mold & Foundry Co., has been placed in charge of sales of this new department.

□ □ □

Harnischfeger Corporation, Milwaukee, in addition to electing Walter Harnischfeger president to succeed his father, Henry Harnischfeger, has chosen the following officers: Vice president, E. Standfuss; secretary, R. Binkowski; treasurer, C. Haugaard; assistant secretary, F. J. Hartmann; directors, Walter Harnischfeger, R. Binkowski, E. Standfuss, Walter Kasten, Louis Quarles, J. Harnischfeger, R. von Schleinitz, all of Milwaukee, I. L. Porter, Chicago, and J. O. Eaton, Cleveland.

□ □ □

Consolidated Ashcroft Hancock Co. Inc., Boston and Bridgeport, Conn., manufacturer of recording and controlling instruments, gages, valves and steam specialties, a subsidiary of Manning, Maxwell & Moore Inc., reports satisfactory net earnings for 1930. Though smaller than for preceding years they are said to make an excellent showing. Products of this company are used by practically every branch of industry and the figures show accurately the decline of general business for 1930.

□ □ □

National Steel Tank & Mfg. Co., Bradford, Ill., has elected officers as follows: President, Andrew W. Woodman; vice president, Ralph M. Powers; treasurer, R. D. Lackman; secretary, Dean W. Woodman; directors, the officers and Earl T. DeMoe. The company has been in existence for 30 years, R. D. Lackman being one of the founders. Advent of Messrs. Woodman and DeMoe into the company is the first change in management in this period. It is planned to add allied lines of manufacture.

MIRRORS of MOTORDOM

DETROIT

HENRY FORD continues silent on the matter of a low-priced 8-cylinder automobile, which was to be expected, but in Detroit the only question still open is the date of its introduction. Early spring originally was mentioned, but now there is some basis for believing it will be about July 1.

For one thing, midyear probably will be a more opportune time for launching a new model. Public interest in automobiles is not brisk now, times are expected to improve slowly, and a better reception in midsummer than early spring appears logical.

As yet there are no external evidences of retooling either the Highland Park or Lincoln plants—it being assumed that Fordson's facilities will largely be reserved for Model A—and this will require several months. Between the demise of Model T and introduction of Model A nine months elapsed, but Model A was only on the drawing boards when Model T was dropped, while Ford eights are now operating in Detroit.

It would seem logical to expect an entirely new design for the eight, perhaps not differing materially in general outward appearance from Model A, but with a chassis larger and stronger, perhaps semi-elliptic springs and larger, heavier axles. Yet one report is that the new 8-cylinder motor will be cradled in substantially the same chassis as Model A.

Ford's Price Cut Logical for Eight to Come

A good many believe that Ford "pulled his punch" in announcing the recent price reductions. These cuts did no more than practically restore the former parity with Chevrolet and are said not to have indicated the savings in production costs due, to mention only one cause, to lower commodity prices. Ford price policy may be guided at present with an eye to the proposed eight.

Ford, meanwhile, continues subordinate to Chevrolet in production. Some departments at Fordson are on a 4-day week, part of the office has been working 5 days, but the assembly line moves only on Monday, Tuesday and Wednesday.

Forecast Chevrolet to Best Ford in February

Between what are believed to be authentic daily rates and the reported output of motors is a discrepancy that is difficult to reconcile. The past few days assembly is believed to have been not over 3500 daily, a decline of upward of 1000 units daily from the schedule when production was resumed Jan. 12.

Yet it is claimed that in January 67,000 motors were made, and that for February 75,000 have been scheduled. A more conservative estimate is that Ford production in February will not exceed 60,000 units.

The fact that Kelsey-Hayes Wheel, a large proportion of whose business is Ford, has curtailed may be an indication.

Refinement of some of the deluxe models, including a slightly longer chassis and a new type windshield is expected shortly.

Eight of the ten open-hearth steel furnaces at Fordson are on, and most Ford parts makers continue to receive the bulk of their steel requirements from Ford.

Chevrolet, while the best producer of the entire automotive industry and still outselling Ford, evidences a more conservative policy. Its dealers have been well stocked, having about 50,000 on their floors, and while Chevrolet expects to come into the April buying season with 70,000 units on display, the time has not yet come to build up stocks to this level of high dealer stocks.

Three thousand a day, 5 days a week, is the Chevrolet schedule. Originally 84,000 units were considered for February, but 70,000 is now regarded as a more probable output. Not in 18 months, considering all divisions, has Chevrolet employment been so high.

The Detroit gear, forge, axle and spring plants have been operating day and night. The foundry division at Saginaw is pouring 1500 tons of iron daily, only 300 tons short of its record, and instead of resorting to longer hours more cupolas are melting and more labor employed.

Hudson-Essex, now having amply stocked its dealers, last week made the third reduction in schedule in January, and its weekly output now is 1200 to 1400 units. Its material releases for February have been negligible, notwithstanding reports to the contrary, and its inventory of material is understood to be higher than 30 and 60 days ago.

Hudson-Essex Output Will Gain Only from Orders

In some departments Hudson-Essex is operating only 2 days weekly, the schedule being synchronized to actual orders. More Hudson eights, at a base price of $875, are moving than Essexes priced at $595. Changes in several executive positions recently indicate that the revision in personnel may not have been consummated yet.

Chrysler releases for steel and other materials for February show a slight gain over January.

The Chrysler lines proper average 125 units daily, 5 days a week.

Dodge, now employing 11,000 men, is making 375 cars a day, 5 days, two-thirds being passenger cars.

DeSoto operations continue highly irregular. Plymouth is at 3 days,

(*Concluded on Page* 81)

EDITORIAL

Industry's Obligation to the Community

ONE of the most gratifying aspects of the present period of depression is the broad-minded attitude taken by a few business leaders on the obligations of industry to its employes. Executives in high places have stated in unmistakable terms that it is the duty of employers to stand behind their workmen and to give them every possible assistance in this time of hardship.

As long ago as the spring meeting of the American Iron and Steel institute, James A. Farrell, president, United States Steel Corp., served notice that the steel industry must not cut wages. He has been supported in this stand by practically all of the important steel producers of the country.

In October of last year Myron C. Taylor, chairman of U. S. Steel, made this clear-cut statement: "It is up to the steel industry to see that none of its men is forced to call upon the public."

Again, last week, Mr. Taylor spoke to millions of radio listeners as follows: "If there be any objective in this existence of ours worthy of the time and effort by us who are passing through it, it must be to raise mankind in general, not the particular few, but the entire race, to higher lines of understanding and cooperation, of enjoyment and well being."

In December, Gerard Swope, president, General Electric Co., outlined the various steps of a comprehensive program adopted by that company "for removing fear of the future from the mind of the worker in the shop—that is, his constant fear of not being able to provide for and take care of his responsibilities to his dependents." The plan provides for life insurance, home ownership, stock purchase, pension and stabilization of employment.

Attitude of Business Leaders Has Changed Since Prewar Days

A number of other heads of large corporations have given utterance to similar statements, all of which acknowledge industry's obligation to society. This frank admission of responsibility indicates the changing attitude of enlightened business leadership. In prewar times, pronouncements such as those quoted in the foregoing paragraphs would have been greeted by business with raised eyebrows. Their authors would have been suspected of dangerously radical tendencies. That the better element in the business world now accepts these views as sound is a most significant and favorable sign. A notable tendency in this country in recent years has been the modification of opinions formerly held by the reactionary groups of both extremes. There has resulted a degree of appreciation and understanding never before attained.

Unfortunately, however, these constructive policies have not yet been adopted by all members of the industrial family. In too many instances business executives are clinging to antiquated conceptions of their duty to society. A minority—adherents to the old school of industrial tyranny—still are blind to the potential dangers that may arise from their action.

Here and there throughout the industrial sections of the country will be found a few of these offenders, whose companies are not carrying their share of the burden in this period of depression. In shirking their responsibilities, they not only are thrusting additional hardships onto the shoulders of others but they also are providing fertile ground for the propagation of the seeds of discontent.

A Single Act of Oppression Gives Entire Industry a Black Eye

This latter aspect of the situation would not be serious if the consequences could be laid at the doors of the shirkers, but unfortunately this never happens. On the contrary, when the public hears of a few cases of unfair treatment of employes, it assumes that they are typical of industry in general. In other words, the unjustified acts of a few offenders gives all industry a black eye in the public mind. What a pity it is that American industry, whose leaders are trying to stand four-square in fulfilling their obligations to society in this trying period, must be held responsible for the acts of a few selfish individuals!

Now, more than in time of prosperity, it is important that the rank and file of industry stand united on constructive policies. In this time of trial, when the country is overrun with faddists eager to make capital out of every trace of discontent and when a shamefully large number of our servants in the halls of congress are looking for "horrible examples" on which to base attacks on "big business," it is unfortunate that the picture of commendable action by the majority is marred by the misconduct of a short-sighted minority.

"Sanity in Time of Peril Is Only Sure Safeguard Against Disaster"

Says Magnus W. Alexander, President of National Industrial Conference Board in Cleveland Address. Sees Business Gain If Common Sense Will Prevail Over Fatalism and Faddism

INDUSTRY needs the moral support of the general public, and that support can be secured only by a wider dissemination of the facts regarding business conditions, by the development of a clearer understanding of the interplay of economic forces, and by a recognition of the limits of human control over the economic mechanism. If common sense can prevail over fatalism on the one hand and faddism on the other, business will soon emerge from its prevailing depression."

So declared Magnus W. Alexander, president of the National Industrial Conference board, of New York, before the annual meeting of the Associated Industries of Cleveland, Jan. 29. Mr. Alexander's address was entitled "Fatalism, Faddism, and Fact."

Fatalism, Faddism and Fact

Starting with the assumption that any severe and prolonged business depression will develop certain mental attitudes, Mr. Alexander classified these attitudes into three groups which he labeled Fatalism, Faddism, and Fact.

"The fatalists," he said, "sit with folded hands, gloomy, languid, and resourceless; the faddists have a ready remedy for every situation, however difficult; and between these two extremes stand those who have a passion for facts and who base their action in any situation upon what the facts disclose."

Pointing out that the fatalistic state of mind among business men arises out of a mistaken belief that the affairs of men are directed by some natural or supernatural forces beyond human control, Mr. Alexander said that such a state of mind breeds pessimism and cowardice.

"It makes," he declared, "for the formulation and adoption of business policies on the theory that the only way out of existing difficulties is to let business take its course and to allow each individual to make his own adjustment to the situation.

"In anticipation of worse conditions, the fatalistic employer resorts to wholesale discharge of employes and to reduction of wage rates. The banker calls in his loans and tightens credit. The general public indulges in what is termed a buyers' strike, and rumors precipitate wild runs on banks.

"Manifestations of an extreme individualism appear, co-operative activities lose supporters, and conflicting individual interests tend to supplant concerted effort in the direction and control of economic relationships."

Mr. Alexander showed that, although fatalism has not dominated American business during the past year of depression, the same cannot be said of the general public. This is indicated by the hesitancy on the part of the public to use its buying power, which, although undoubtedly diminished by the decreased income of wage earners, is nevertheless tremendous, as shown by the savings of the people. These savings have increased to the stupendous sum of over fifty billion dollars, represented in the accumulation of savings bank deposits, assets of building and loan associations, and assets of life insurance companies.

Restoring Confidence Is First Step

"The restoration of public confidence in the future of American industry and commerce," declared Mr. Alexander, "is unquestionably the first step toward substantial business recovery. In so far as industry has retained faith in its ability to cope collectively with its problems, even when they are magnified by business depression, industrial relationships have been strengthened and a surer foundation for sound business development has been laid.

"In contrast with the attitude of abject hope-

lessness in periods of business depression," continued Mr. Alexander, "is that of boundless faith in quick remedies, expressing itself in the extreme as faddism. It rests on the belief that by the application of a variety of curative prescriptions the defects in our economic system can be easily remedied and prosperity be speedily restored. This curative attitude, with its faith in the power of social control, is at the basis of socialism, varying in degree as socialism itself varies in degree. In an extreme form, it is represented in the Russian experiment, for communism is rooted in the belief that social control will perform economic miracles. The Five Year Plan, which Russia is now endeavoring to put in effect, rests on the idea that complete reorganization of the industrial life of that country with its almost exclusively agricultural economy can be achieved within a short period of time and along specific lines through the application of a series of predetermined policies. To some of us this scheme resembles an attempt to lift oneself by one's bootstraps, the net result of which is usually backstrain."

Ill-Advised Legislation Harmful

The speaker pointed out that faddism in a milder form is peculiarly prevalent among politicians and frequently results in hasty and ill-advised legislation which may be harmful and dangerous. "It is unfortunate," he said, "that the slowing down of business is not accompanied by a corresponding reduction of the current output of our legislative bodies."

With the view of one who looks at the facts Mr. Alexander declined to say when or where the first signs of renewed and accelerating business activity will manifest themselves, although, naturally, all eyes look to the United States. He referred to the various projects proposed to relieve conditions and particularly to that of largely increased public expenditures for construction work. While the remedy may be sound as a general policy it lends itself to abuse and might ultimately prove injurious. He discussed the advisability of the Federal Government undertaking to relieve business depression by means of extraordinary building projects, as opposed to leaving such remedial measures to local and state governments.

Employment Problem Has Two Sides

With reference to the proposal, growing out of the present unemployment situation, that business concerns guarantee their employes a fixed annual income, Mr. Alexander said that "such a plan would be generally practicable if the business concerns themselves were guaranteed a fixed annual income. For its own sake as well as for that of its employes, however, no business can afford to enter into arrangements that will prevent it from making whatever adjustments may become necessary in order to preserve its existence. Sometimes these adjustments may require reduction of the working force or necessitate lessened time schedules and, therefore, lessened weekly wage earnings for all the workers; at other times, an outright reduction in wage rates may be necessary.

Common Sense Is Best Safeguard

"If common sense," concluded Mr. Alexander, "can prevail over fatalism on the one hand and faddism on the other business will soon emerge from its prevailing depression and will by its experience be better equipped to deal with similar problems in the future. Sanity in the time of peril is the only sure safeguard against disaster."

Nation's Latent Buying Power Is Ready To Come Into Action

BY GEORGE M. VERITY
Chairman, American Rolling Mill Co.

WHILE human life is largely affected by emotional reactions and business is influenced by economic forces both of them are organized very much alike. So many varied factors are constantly influencing both business and human life that neither can move along on a straight line. Like the tides of the sea they are eternally restless, either going out or coming in.

For these basic reasons, ever since business was an organized adventure, periods of recession and of readjustment have followed every period of great activity or of steady progress. The business history of the past hundred years is replete with these peaks of progress and valleys of depression.

Fortunately our periods of increasing activity are three or four times as long as those of lessened activity, otherwise we could not have made the monumental progress which surrounds the history of our country.

Working for Greater Stability

Organized business is constantly working for greater stability in all human affairs, but like many other things in life progress which makes for stability is a matter of evolution and not of revolution.

While each generation must contribute what it can to both human progress and to business stability our constant task is to adjust ourselves to life and to business as we find them, from day to day and year to year.

In active times the standards of economy reached by careful planning and hard work gradually give way to the demands for larger production and to the many appeals for support from organized society, so that by the time an active period has run its course individually and collectively we are faced with higher costs of production and distribution and of living.

You can see therefore the necessity for complete retrenchment during every period of readjustment. These periods offer the only way to get rid of such excess costs as have accumulated during active times and to strive for the still greater efficiency always needed to meet an ever growing competition.

Gain Efficiency Through Adjustment

Whatever efficiency we gain in these trying times of business recession is an absolute necessity in our continued existence.

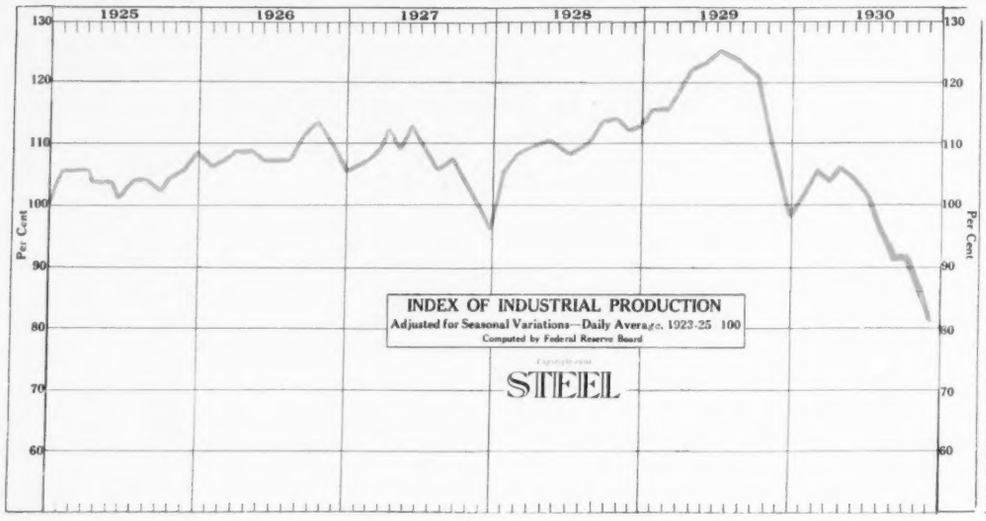
As we stand today, both business and the securities markets have suffered the most severe liquidation and readjustment that history records. Business has paid the full price of its overdoing and has cleaned house thoroughly.

Production which goes ahead so strongly when the stage is set for it becomes ultra conservative towards the end of a period of readjustment, so that sooner or later a minimum of consumption exceeds production and thus prepares a new setting for the next period of activity.

Buyers Ready When Confidence Returns

We have now reached the point where consumption exceeds production, inventories of merchandise and raw and semifinished materials are very low, wear and tear are going on as usual, money is available for legitimate business at exceedingly low rates and a latent buying power is ready to come into action, just as fast as confidence returns to the business world and to the great buying public.

THE BUSINESS TREND



1929	
Dec.	99
Nov.	106
Oct.	117
Sept.	121
Aug.	136

1930	
Dec.	82
Nov.	84
Oct.	88
Sept.	91
Aug.	91

Recovery in January Was Below Expectations

ONE-twelfth of 1931 has passed and American business still is awaiting positive signs of recovery. Some gains were made in January, but for the most part they were disappointing.

In the automobile industry, output increased from a low point during the holidays to a rate of about 45,000 units per week in the latter part of January. This represents an improvement over November and December, 1930, but the outlook for a continuing increase in output is uncertain.

Steelworks operations registered gradual gains throughout the month. A rate of 47 per cent of capacity had been reached in the final week of January. However, the situation is spotty and unless new demand appears suddenly the industry may have to mark time before another upward spurt is witnessed.

Freight Car Loadings Show Gain In Three Consecutive Weeks

Loadings of revenue freight for the week ending Jan. 17 increased 11,687 cars. This indicates that the recovery in freight volume is tapering off in almost the same manner that it did in January, 1930. However, there is one point of difference. Last year loadings gained in the first and second weeks in January and declined in the third. This year gains have been registered for three consecutive weeks. However the total volume thus far in January, 1931, is only 2,055,571 cars as against 2,485,-371 in the same period last year.

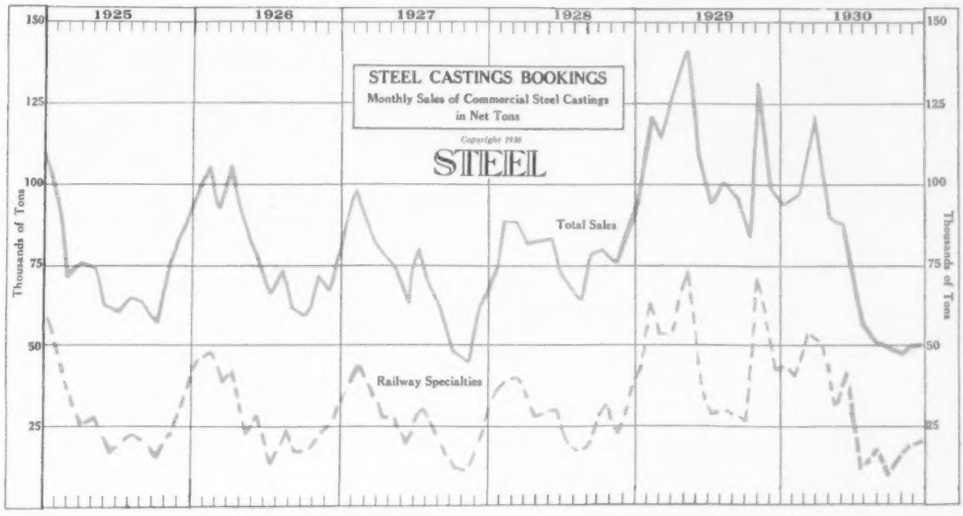
This is the season of the year when annual earnings statements appear. In general, they make poor reading. United States Steel Corp. earned $9.12 per common share in 1930 as against $19.96 in 1929. Jones & Laughlin net was nine million in 1930 as compared with 20 million in the previous year. Inland's net was equivalent to $5.41 a share in 1930, which is comparable to $9.76 in 1929. It is evident that many companies have suffered at least a 50 per cent drop in profits.

Earnings Dip To Extremely Low Levels in December

The range of earnings, as revealed by the monthly figures of U. S. Steel, emphasizes the drastic decline in the closing months of the old year. The peak of earnings came in March, when earnings exceeded 18 million dollars. Except for a slight upturn in May, earnings declined steadily in every month until they reached a point below 11 million in October. In November they dropped to below eight million and in December they barely topped four million.

The price situation has not changed materially. Wholesale commodity price indexes still are declining at the rate of a fraction of a point a week. STEEL's composite remains at $31.73, it having held this position for three consecutive weeks. However, finished steel prices are not being tested, and therefore the trend cannot be determined.

While the general outlook appears drab, there are a few bright spots. The volume of shipbuilding under way, authorized or in sight in American yards, as compiled in the current issue of *Marine Review*, involves expenditures totaling at least $300,000,000. In certain branches of the heavy equipment field, plants have well-filled order books. In fact there are a score or more small sectors of industry in which no evidences of depression are visible.



Total New Bookings

	Tons
December, 1930	49,387
November, 1930	48,123
December, 1929	89,985

Railway Specialties

December, 1930	19,256
November, 1930	16,495
December, 1929	33,980

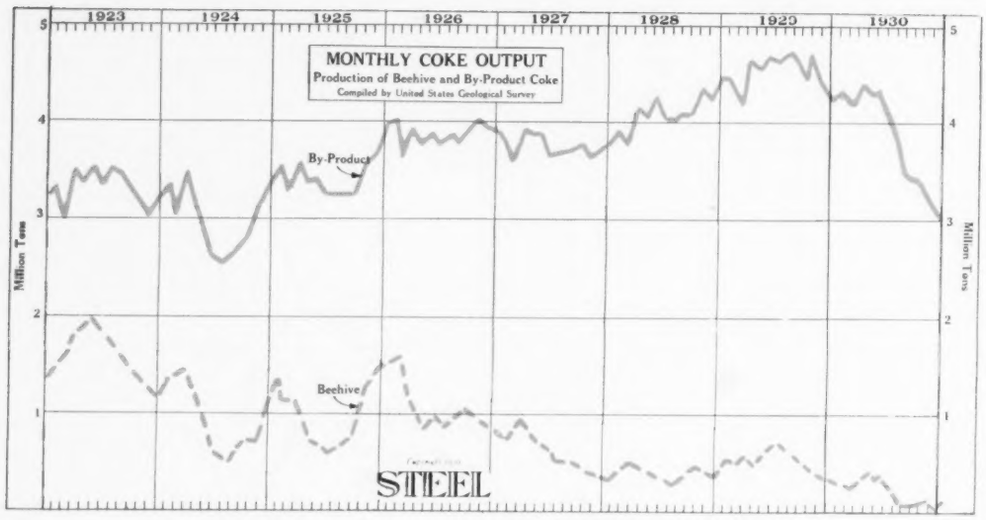
Steel Castings Orders Are Bolstered By Railway Specialties

December orders for commercial steel castings, and production likewise, registered slight gains. Bookings, amounting to 34.2 per cent of capacity, held a little above production, at 32.1 per cent. Railway specialties were entirely responsible for the month's gain in orders, as they totaled 19,256 tons, up 2761 tons. A summary of the past year shows that 884,433 tons, made up of 333,199 tons of railway specialties and 551,234 tons of miscellaneous castings, were ordered. In 1929 orders for 597,899 tons of railway specialties and 739,538 tons of miscellaneous castings totaled 1,337,457 tons. Production in 1930 of 991,872 tons, exceeding orders by a good margin, compares with 1929 production of 1,353,118 tons.

Steel Corporation's Earnings Reflect Lower Prices and Production

The course of the United States Steel Corporation's earnings during the fourth quarter of 1930 was precipitately downward, from under 11 million dollars in October, to slightly under eight millions in November and little more than four millions in December. Totaling $23,083,791 for the period, they were less than half those of the fourth quarter of 1929. The year's total of $157,755,791 earned compares with $258,722,453 in 1929 and $193,304,-927 in 1928. Monthly earnings declined consecutively after May, when they were $16,-570,790. An interpretation of this steady curtailment of earnings is found in the receding trend lines of production and the similar path of prices in STEEL's composite.

	1929	1930
Dec.	$16,014,467	$4,190,958
Nov.	18,367,105	7,949,384
Oct.	22,066,325	10,943,449
Sept.	21,183,566	11,514,933
Aug.	24,687,088	13,000,496
July	24,303,058	13,479,870



By-Product

	Tons
December 1930	3,077,290
November, 1930	3,137,110
December, 1929	4,180,601

Beehive

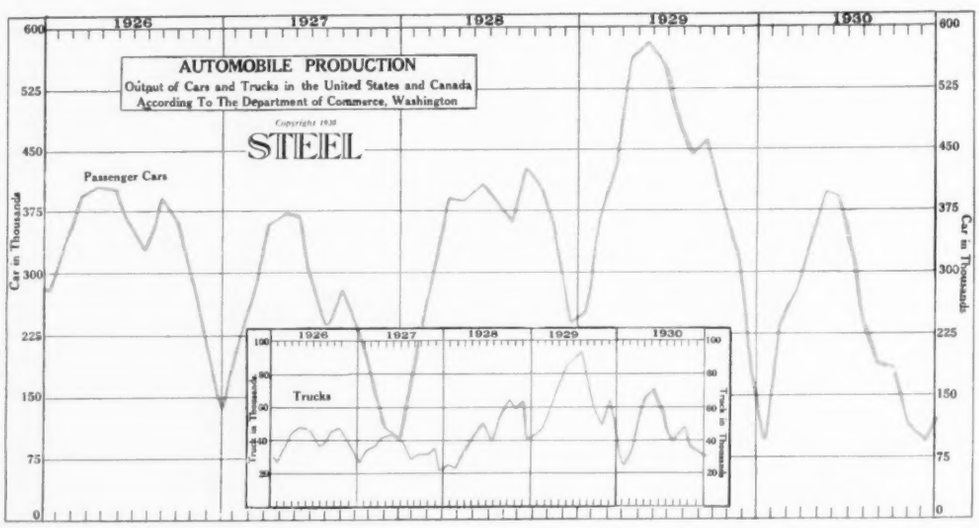
December, 1930	171,100
November, 1930	167,500
December, 1929	344,900

Total Coke Output Again Recedes As Stocks Are Held Down

Production of all coke during December was 3,248,390 tons, 56,220 tons less than the output for November, and 28.2 per cent under that of December, 1929. Output of by-product coke amounted to 3,077,290 tons or 99,267 tons per day, a decrease from November of 1.9 per cent in tonnage but 5.1 per cent in the daily average. Production of beehive coke is estimated at 171,100 tons. Stocks changed their trend and receded from 3,331,911 tons in the previous month to 3,235,174 tons in December. The record reveals that the 45,514,508 tons of by-product in 1930 was the lowest total since 1927, the 2,795,800 tons of beehive the lowest since 1880, and the combined total the lowest since 1924.

December Automobile Production Makes Substantial Gains

As indicated in preliminary reports, production of automobiles in the United States and Canada pointed upward in December and surpassed November, 1930, and a very low December, 1929. An output of 128,295 passenger cars and 32,928 trucks, totaling 161,223, compares with totals of 141,159 in November and 125,502 in December, 1929. The record for 1930 shows that 3,509,062 cars were produced, as compared with 5,621,715 in the peak year just preceding, and well under 1928. In the United States alone production was 2,814,-349 passenger cars and 540,521 trucks. Early reports apparently warrant the prediction that January will gain over December, but whether more or less than seasonally is a question.

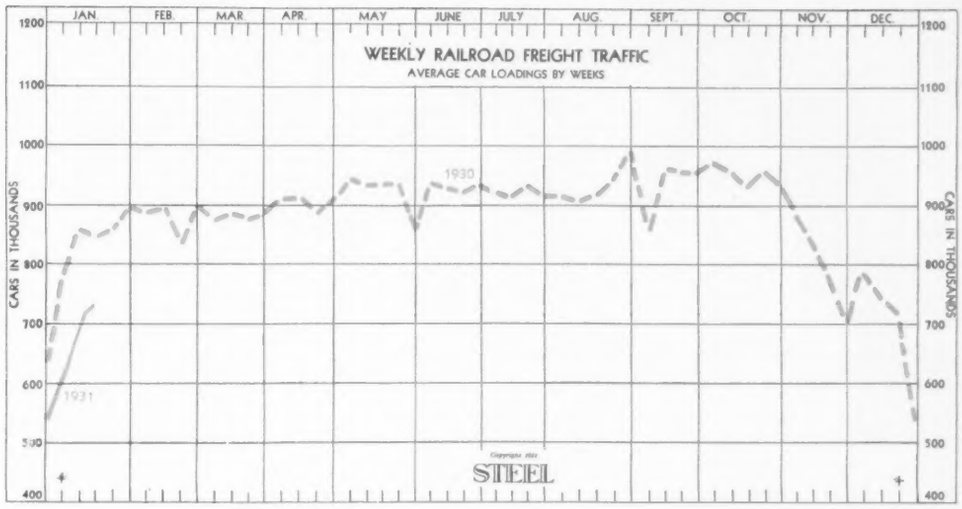


Passenger Cars

	1930	1929
Dec.	128,295	96,920
Nov.	106,494	176,629
Oct.	116,006	328,305
Sept.	186,575	375,046
August	194,234	452,857

Trucks

	1930	1929
Dec.	32,928	28,582
Nov.	34,665	50,368
Oct.	38,579	66,235
Sept.	44,309	54,683
August	38,606	59,985



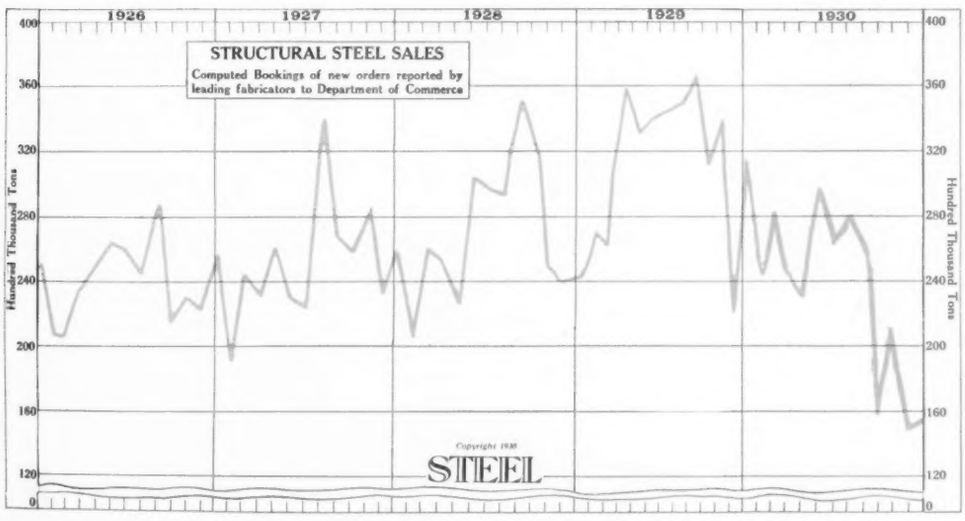
	1931	1930
Jan. 17	725,938	847,155
Jan. 10	714,251	862,461
Jan. 3	615,382	775,745
	1930	**1929**
Dec. 27	538,419	639,389
Dec. 20	713,810	842,775

Revenue Freight Car Loadings Slacken, Fall Short of Normal Gain

A normal seasonal pickup in business scarcely has been achieved, so far as freight car loadings show. Revenue freight traffic for the week ended Jan. 17 was 725,938 cars, a gain of but 11,687 cars over the preceding week and a decline of 121,217 from the same week in 1930. Movement of freight for the present calendar year to Jan. 17 totaled 2,055,571 cars, a decline of 17.2 per cent from the corresponding period of 1930 and 22.2 per cent from the 1929 period. Relatively speaking, the small gain made in the last 1931 week reported, and a temporary setback in the corresponding 1930 week, makes a slightly favorable movement for the week ended Jan. 17.

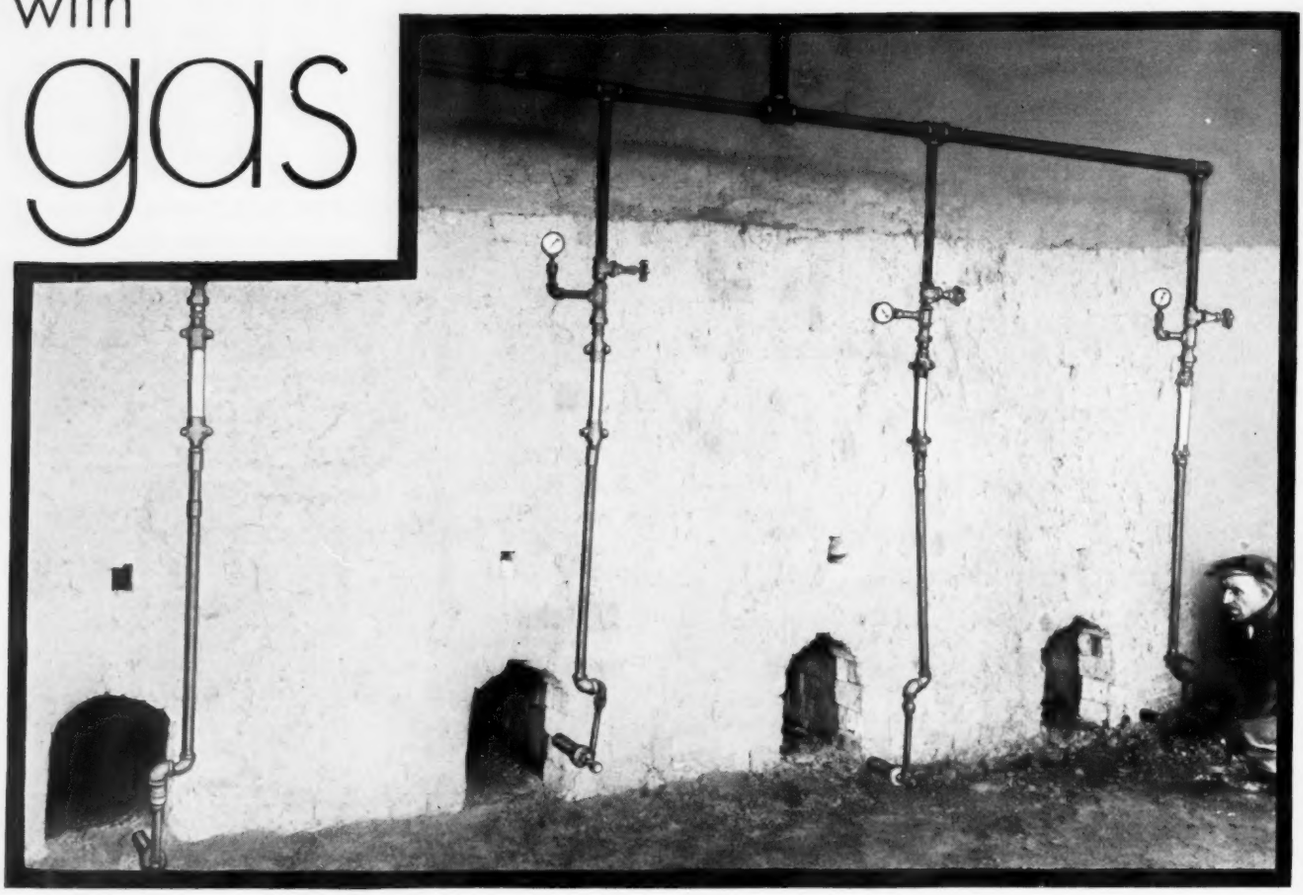
Fabricated Structural Steel Bookings Make Slight Recovery

A very slight gain in the bookings of fabricated structural steel lifted December figures above those of the previous month, which had been the lowest in years. Orders for 159,600 tons were placed in the final month, as compared with 158,000 tons in November. A marked drop took place in shipments, which declined from 208,000 tons or 52 per cent of capacity to 178,000 tons or 44.5 per cent of capacity. The industry received orders for a total of 2,804,800 tons in 1930, operating at a rate of 58.4 per cent, a rate which was the lowest since 1926. Nineteen-thirty shipments, at 3,149,600 tons or 65.6 per cent of capacity, ran well ahead of orders.

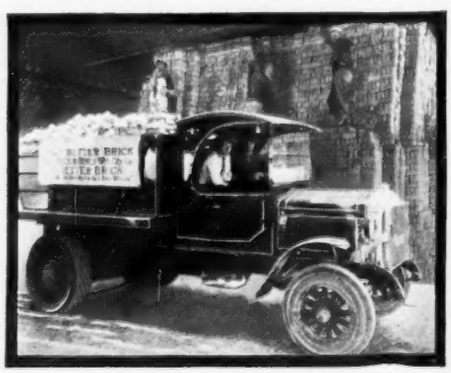


	Tons 1930	1929
December	159,600	297,605
November	158,000	319,500
October	219,000	319,500
September	162,000	296,450
August	264,000	361,900
July	284,000	350,350
June	276,000	342,650

better brick burning with gas

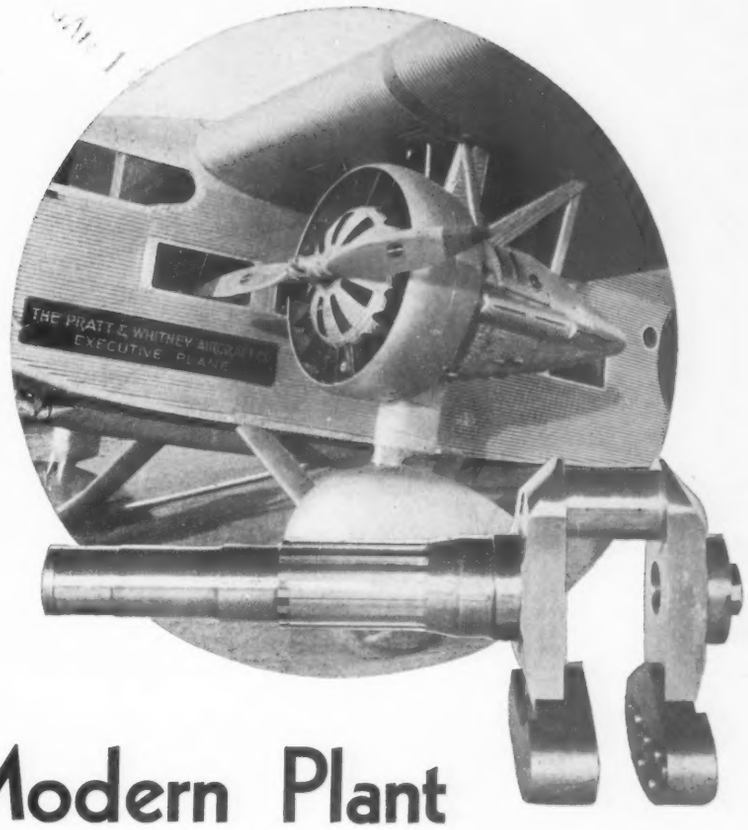


Gas-fired kilns for burning brick and tile are proving money-makers in more ways than one: the accurate controllability of gas heat insures uniformity of color; gas makes for fewer bats to be thrown away. And the speed of burning that comes with the use of gas increases production appreciably. Write for your free copy of "Gas Heat" and see what gas can do for you!



AMERICAN GAS ASSOCIATION

420 Lexington Avenue, New York



ONE of the power plants of a trimotor all-metal Ford-type plane used by executives of the Pratt & Whitney company, the engine shown being of the Wasp type. Inset is a crankshaft of the series B 575-horsepower Hornet-type engine

Radial Engines Produced in Modern Plant

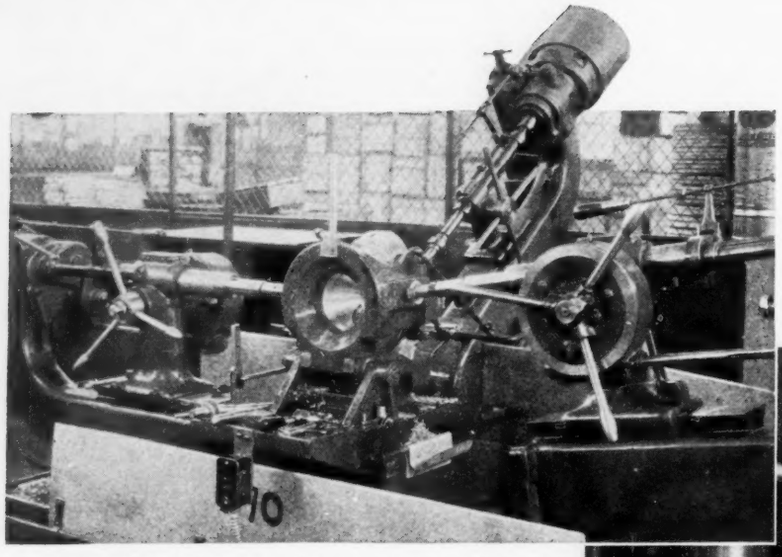
BY H. R. SIMONDS
Associate Editor, STEEL

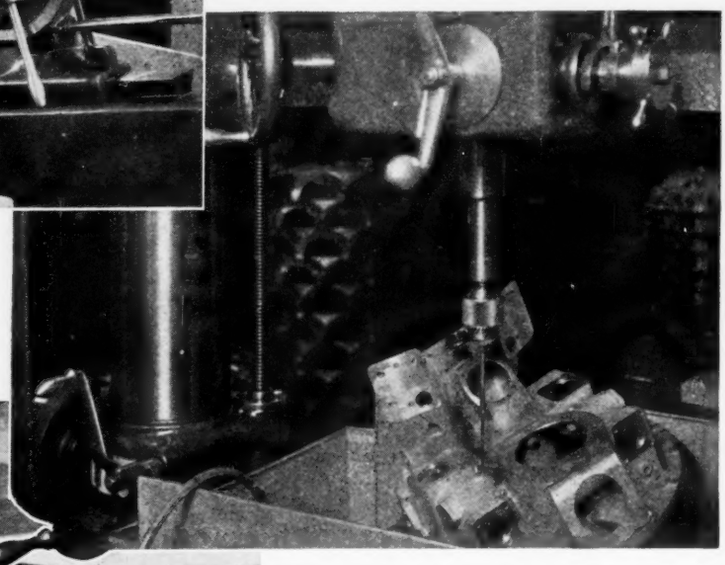
SUCCESSFUL progress of the airplane industry naturally is predicated upon the production of reliable and efficient engines; such engines are now being built and their development during recent years has been one of the outstanding achievements in the mechanical arts. The new $2,000,000 plant of the Pratt & Whitney Aircraft Co., Hartford, Conn., has a capacity for the production of about 500 engines a month, which is impressive when it is realized that most of the parts entering into the construction of each engine must be finished to an accuracy of one or two ten thousandths of an inch.

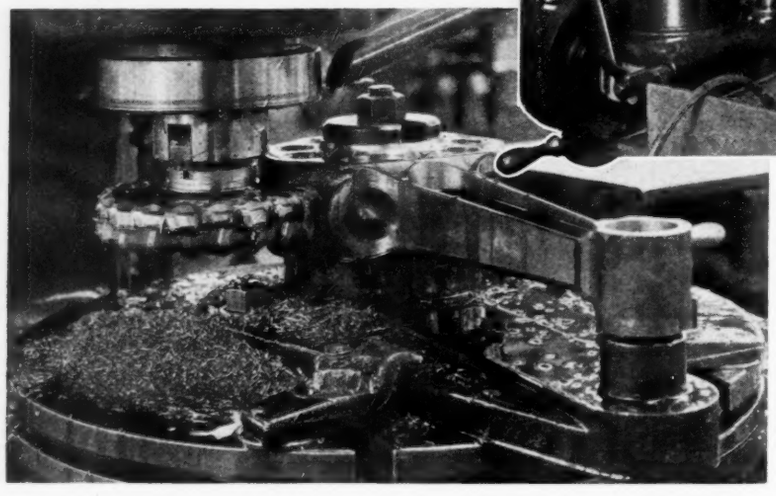
The Pratt & Whitney Aircraft Co., builder of the Wasp and Hornet-type radial engines, was incorporated in July, 1925, under the sponsorship of the Pratt & Whitney Co., Hartford, Conn. The aircraft company since has separated from its parent company and is now a division of the United Aircraft & Transportation Corp., New York. Almost immediately after producing the first Wasp engine in December, 1925, an urgent demand developed and grew constantly until in 1929 it became necessary to increase the manufacturing facilities. Don L. Brown, at that time vice president in charge of production and now president of the company, was given supervision of the design and construction of a new airplane engine manufacturing plant which is now complete and in production, one of the most modern of its kind in the world with a floor space of 500,000 square feet and a normal force of from 800 to 1000 men.

The plant is located in East Hartford and a 500-acre airport is being developed adjacent to it to serve as the eastern terminus for all units of the United Aircraft & Transportation Corp. and also to serve for testing and experimental purposes for both the Pratt & Whitney Aircraft Co. and the Chance Vought plant nearby, another division of the United Aircraft & Transportation Corp.

Practically all machining and assembling operations on engines in production are performed in a spacious single-story building which adjoins at one side the office and engineering building and at other sides the heat treating department and the testing and shipping rooms. Forward flow of material from the raw material at one end to the assembled







THREE typical drilling and machining operations are shown here. Above is a special drill press for drilling and tapping spot facings, spark plug holes and primer holes. At the right is another special drilling setup and below is a machining operation on a master connecting rod

engines at the other has been attained for nearly all operations. One half of the machine shop is devoted to steel and the other half to aluminum and other nonferrous work, and the parts in the two sections advance simultaneously through the various machining operations until they join at the assembly benches.

Test Raw Material

Raw material is received at one end of the plant in the form of forgings, castings and bar stock. All material is subjected to exacting tests before acceptance. Forgings are checked for hardness on receipt and are marked with numbers to identify them with the records of the steel mills and forging shops. Important parts such as the master connecting rod, crankshaft and piston pins are given special or individual serial numbers and a complete history of these parts kept in a separate file. Castings are inspected at the foundry and a test bar from each heat is sent to the company's well equipped laboratory for physical and chemical tests which are recorded. Special castings such as the cylinder head are subjected to water pressure tests before and after machining.

Carefully selected material is used in the construction of airplane engines to give strength and lightness. The Wasp and Hornet engines are of the nine-cylinder radial type. The crankcase is divided in the line of the cylinders and comprises two large identical aluminum forgings which are held together by nine screw bolts, one between each two cylinders. The screw bolts are chrome-molybdenum steel. Bolted to the crankcase are nine cylinders made of manganese steel, threaded and shrunk into cast aluminum cylinder heads which carry the valves and valve operating rockers. Valve seats are of bronze.

The crankshaft is made in two parts to permit assembling the master rod on it, a necessary construction since the master connecting rod is made of one piece to reduce weight and permit high-speed operation. The forward part of the crankshaft includes the crankpin at one end and the propeller hub at the other. In this way the driving impulse is transmitted from the engine to the propeller through one solid piece of steel. Steel for both sections of the crankshaft, for connecting rod, gears, and all other parts which are heat treated is carefully specified both as to chemical properties and heat treating, on a standard data sheet. Nearly all of the parts entering into the engine assembly are heat treated, even where no special hardness is required, the only object being to relieve internal strain and give a better grain structure.

Machining Problem Unique

Equipment used in the machining and finishing the various parts which go to make up the Wasp and Hornet engines includes nearly all standard makes of machine tools as well as many specially built units. Some idea of the extent of the equipment may be had from the fact that over 40 machine tools made by 10 different manufacturers are employed in the connecting rod department alone.

The main bay has a floorway of 980 x 400 feet and from this it will be seen material in process must be moved a considerable distance and that good management in this feature of the plant is highly important. A rectangular system of traffic lanes forms the basis of the movement of materials. Three lanes extend the full length of the plant, the center lane being 15 feet wide

with two side lanes each 10 feet wide. Each department has a 5-foot transverse lane running approximately through its center and connecting it with the three main lanes. Raw material as mentioned is located at one end of the building and inasmuch as some of this material is partially fabricated when received, an elaborate receiving and testing department also is located at that end of the building. Railroad receiving platforms are on the steel side of the plant and a long receiving platform for truck shipments is located on the same side.

Skids and Trucks Used

As materials are unloaded they are placed on lift truck platforms or skids; steel bars are placed on small 3-wheel trucks. The skids when loaded are moved by hand-lift trucks or electric trucks. As far as possible this material is left on skids in the rough stores department, although steel bars and pipes in some cases are placed vertically in bins to conserve space. In all manufacturing departments production starts at the side and progresses toward the center aisle and each department has its own equipment and lift trucks by means of which materials are moved on skids from point to point within the department. The first machine in the production line receives its material on skids and in most cases it progresses from one machine to another on this same skid. These skids are usually left in the center aisle to be picked up by electric trucks and taken to the succeeding operation or on to the finished stores department.

For special operations special types of trucks or carriers have been revised, one being a three-decked steel truck which takes the cylinders into the enamel baking ovens; another a gasoline caterpillar tractor

Special electric trucks are used in the handling of material from one department of the plant to another

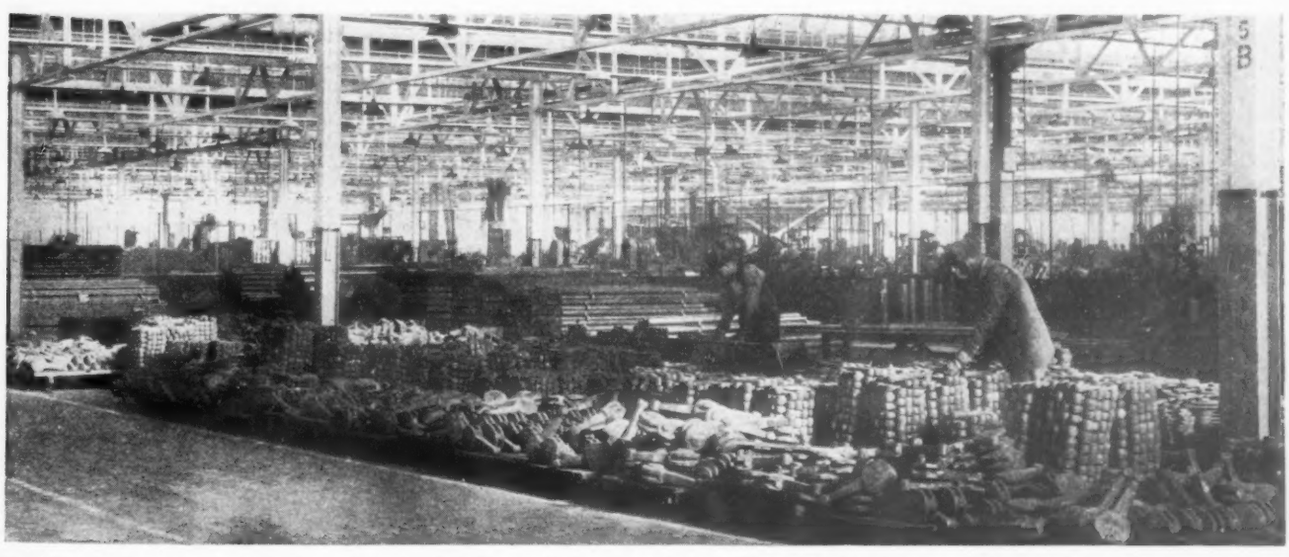
equipped with rubber treads, used for moving heavy loads. The latter has been found invaluable in the placing or rearranging of heavy machine tools and equipment. In the heat treating department a continuous overhead monorail system is used for conveying heavy pieces. The assembly line extends across the plant at right angles to the main lanes and just beyond the finished stores department. Subassemblies are completed on benches and the complete engine assembled on traveling carriers provided with double casters which rest directly on the wood block floor and are guided by steel rails flush with the floor.

When the assembly has been completed the carrier is transferred to the testing department. An overhead monorail with chain hoist lifts the engine from the carrier and places it in position for testing. Testing and inspection are on an elaborate scale seldom met in a production plant. Each engine is put in a wind tunnel and given a run-in test with a special propeller which develops a heavy load. The engine then is completely disassembled and each individual part carefully inspected. It is then reassembled and carefully retested before leaving the plant for its service tests.

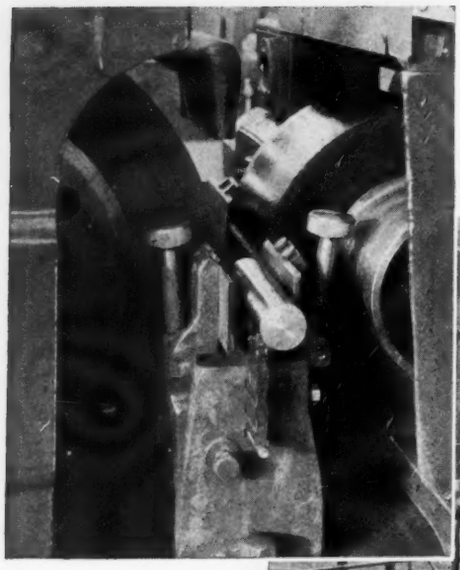
Accurate Finishing Necessary

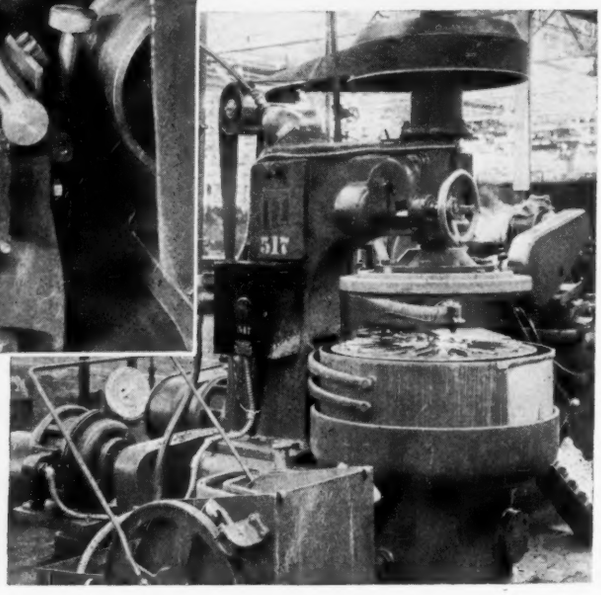
A typical example of the care taken in accurately finishing engine parts is found in the machining and finishing of the cylinder barrel. This is a forging of S.A.E. 1050 steel with the following analysis: Carbon 0.45 to 0.55; manganese 0.50 to 0.80; phosphorus maximum 0.045; sulphur maximum 0.050 per cent. After inspection the forging is rough turned and then heat treated to a brinell hardness of 179 to 200.

The first operation after heat



A view of the rough stock department with the cylinder barrel department in the rear. In the foreground are master and baby connecting rods in the rough forged condition





PISTON pins are ground carefully on centerless grinders, as shown at the left. Below is an abrasive-type lapping machine which laps the pins to within narrow limits of diameter, out of round and straightness

treatment is boring the cylinder and forming the flange, accomplished simultaneously on an automatic boring machine. In the next operation the cylinder barrel is mounted with an air expanded arbor on an automatic lathe and the outside turned. A similar lathe, equipped with air expanded arbor, is used for forming the cooling fins. By means of special tools these fins are all cut at one time to a depth of ⅞-inch. The upper end of the barrel is finished turned and threaded on a turret lathe.

Assembled Under Heat

The barrel is then ready for partial assembly with a cast aluminum cylinder head, accomplished by placing the cylinder head in an electric oven and heating it to 550 degrees Fahr. at which temperature it is threaded onto the cylinder barrel. Just before joining these two parts, however, the valves, guides, seats and rocker shaft bushings all are inserted in the cylinder head while it is hot. After cooling the assembly is given two coats of black enamel which in addition to being a protection aids inspectors who are looking for flaws or other defects at this point. Succeeding operations include drilling the flange on a multiple drill with a special head which permits 12 holes to be drilled at one time, spot facing the flange on a special machine and hydraulically testing at 500 pounds pressure.

At this point the cylinder is ready for the various grinding and lapping operations. The cylinder bore is first ground on an automatic grinder equipped with special fixtures, which permit removal of approximately 0.025-inch of metal and restrict tolerance to plus or minus 0.001-inch. The cylinder is lapped on a honing machine equipped with a standard lapping head. The head as it revolves inside of the cylinder has a spiral motion; that is, it moves up and down as it revolves. It makes two complete revolutions to one up and down cycle and operates at from 50 to 60 reciprocations per minute.

The outward pressure of the sticks against the cylinder wall is light and the cylinders are left on the machine only 4 minutes. The operation is intended merely to lay the nap resulting from the grinding. A mixture of kerosene and oil, about three parts kerosene to one part oil, is used for lubrication. The operation, while an intermediate one between the grinding and the finish polish, is nevertheless performed with the utmost accuracy. Great care is taken to see that the center of the cylinder is directly under the center of the universal joint of the honing machine. The lapping sticks are broken in and prepared for the operation on rejected cylinders and whenever it is necessary to replace one stick all sticks are replaced. The nut adjustment at the top of the machine regulates the pressure of the sticks against the cylinder walls, and this adjustment is made by a man with long experience who knows what pressure gives best results.

After lapping, the cylinder is returned to an automatic grinder for its final finish. A special cork wheel impregnated with extremely fine abrasive material is used. The wheel is made in Germany and its specifications and present successful use are the result of trial and experimental work on the part of the wheel manufacturer and the aircraft company. Experience has shown that the cork wheels do not produce the heat that cloth and other resilient wheels do, and thus one of the greatest difficulties in extremely accurate grinding is eliminated. It is understood that some American manufacturers are now producing cork wheels with somewhat similar specifications. Speeds and wheels sizes for both initial and finish grinding are maintained constant.

Crankshaft in Two Parts

Many accurate grinding operations similar to the one just described are called for in the production of the crankshaft. The front and rear parts of the shaft are joined by having the rear portion telescope into the crankpin which is integral with the forward portion. The proper angular relation between the two parts of the shaft is maintained by splines and a long bolt holds the two parts together. The shaft is carried on three antifriction bearings, two of which are roller bearings located close to the crank cheeks while the third is a deep-row ball bearing placed immediately behind the propeller. The diameters for these bearings are ground after the assembly of the crankshaft has been completed, and after nearly all other machining work on the shaft has been finished.

Each engine has nine pistons and therefore nine piston pins and as the whole operation of the engine is dependent upon the fit of the piston pin in its bearing, unusual care is taken in the finishing of these pins. From the lathes the pins go to a centerless grinder for the first rough grinding operation. From this point on the sequence in part is as follows: After the first grinding the pins are bored and heat treated to relieve internal strain and to produce the proper hardening and temper. Even though the parts are small they emerge from the heat treatment with slight distortions which are corrected by a second grinding operation performed on a second centerless grinder.

After the hole is ground and the ends are ground to length on a special machine consisting of two parallel wheels between which the pieces are inserted, accurately finished and centered plugs are pressed into place at each end of the pin. Insertion of these plugs alters slightly the true edge of the external surface, and to correct this the pieces

(*Concluded on Page* 50)

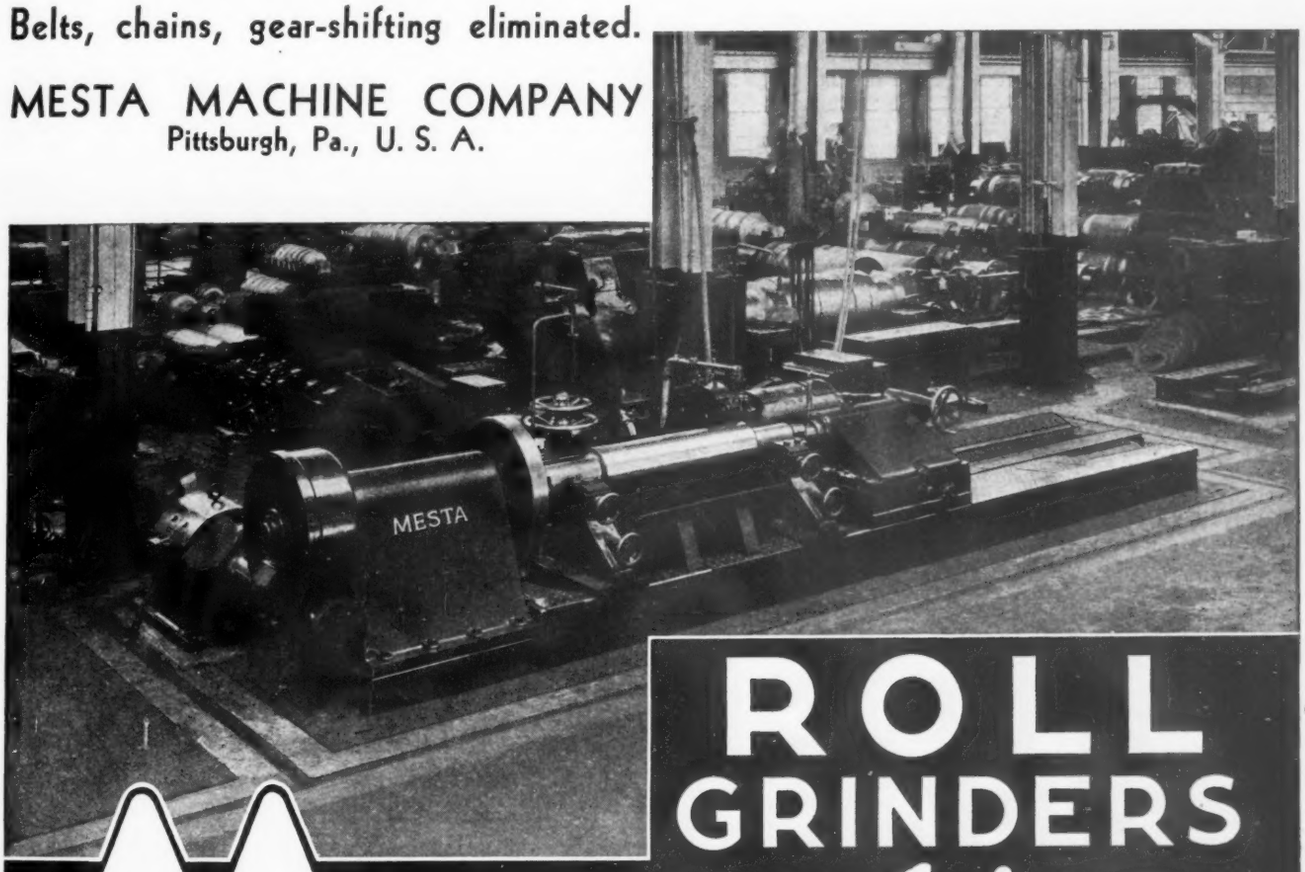
FROM THE OPERATING STANDPOINT

A machine of precision for the finest finishing—but rugged enough to do the heaviest kind of roughing work. Crowning and concaving attachment an integral part of machine and guaranteed to produce any desired amount of crowning or concaving absolutely uniform and accurate.

Anti-friction bearings throughout.

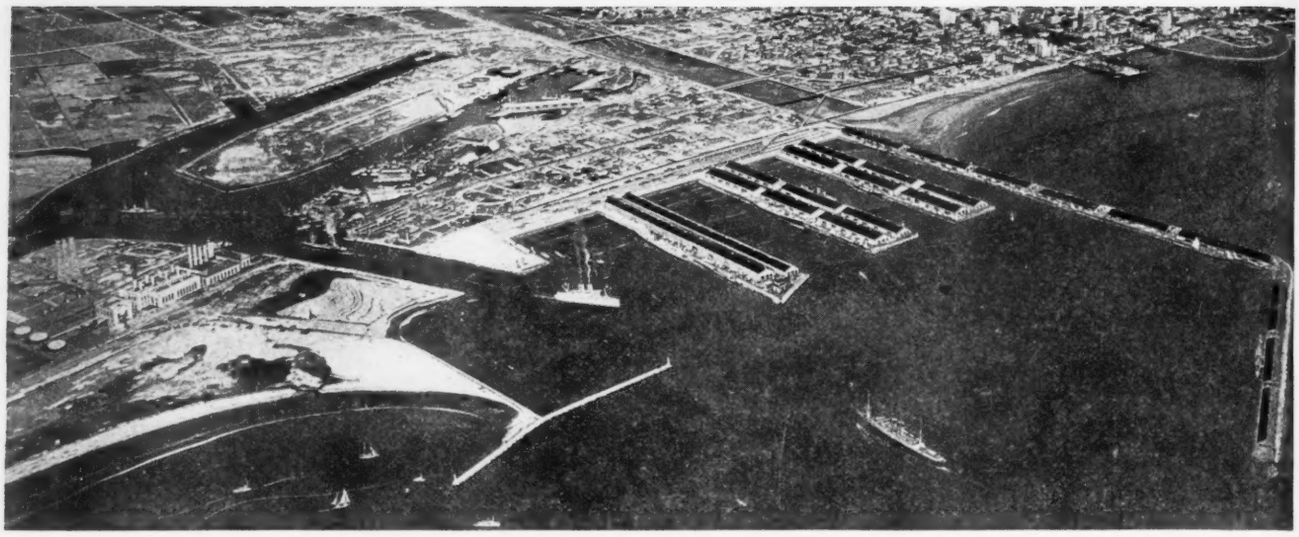
Belts, chains, gear-shifting eliminated.

MESTA MACHINE COMPANY
Pittsburgh, Pa., U. S. A.



ROLL GRINDERS

Mesta



Four piers at Long Beach, Calif., which are built on sturdy walls of steel piling encased in high-test cement above the low-water mark

Pacific Coast Harbors Open Market for Steel Piling

BY KAYE BARON LANSDOWNE

INAUGURATING a new era of harbor building, a string of west coast cities has begun Dietz method harbors which are intended to bring them their share of sea traffic now passing through the three natural ports. This construction at present is involving the utilization of about a shipload of German steel piling a week, but with the opening of the new open-sea harbor at Long Beach, Calif. next door to the port of Los Angeles, the first American steel was used for this purpose. Willingness to adopt American steel piling for open-sea harbors is displayed, but the cost of this material delivered on the west coast, has been higher than German quotations. As a result, the Germans have been delivering their steel direct from Hamburg and Bremen, through the Panama Canal, to the western ports at prices hitherto unmet by American steel producers.

New Marine Development

The open-sea harbor is a comparatively new development in international marine havens. It enables a city that has no natural sea harbor to build out from an exposed coast harbor facilities which often are preferred by seagoing ships because of favorable access. The vessels come in deep water, directly to a dock, whereas in natural harborage to a large extent it is necessary to thread a tortuous channel, continually maintained by dredging, and indicated by captive buoys. Naturally, a captain will prefer the open-sea harbor, other things being equal. Yet, the open-sea harbor would be an impossibility without the Dietz method of construction, with its sturdy walls of steel piling.

German steel piling, for instance, is not cemented far below the surface of the sea, that is, not far below lowest low water, or lowest neap tide. Where sea water surrounds this piling and air is not permitted to contact it, the deterioration is so slow that the Long Beach docks, for instance, are expected to endure for almost half a century, perhaps longer. Above the line of lowest low water, however, the piling is encased with high-test cement, principally as protection against air penetration. Of course, the whole length of the piling may be treated with nonoxidizing paint, as are ship bottoms.

The Dietz method involves a peculiar system of bracing, using wooden Douglas fir piling in the centers and the steel piling around the outer edge. Retaining walls are built interiorly and braced to the outer wall with steel rod. Then a concrete platform is built on top of all the piling, with orifices left in it through which dredged material may be poured until the sea bottom is built up to a tight fit underneath the concrete platform. Obviously, this dredged material could be swept away in a short time were the steel outer piling to fail. Everything depends on its strength and durability. Thus far, it has been used at Long Beach and San Diego on a large scale, and to a lesser extent at Los Angeles, San Francisco and at Puget Sound cities, of which the largest is Seattle.

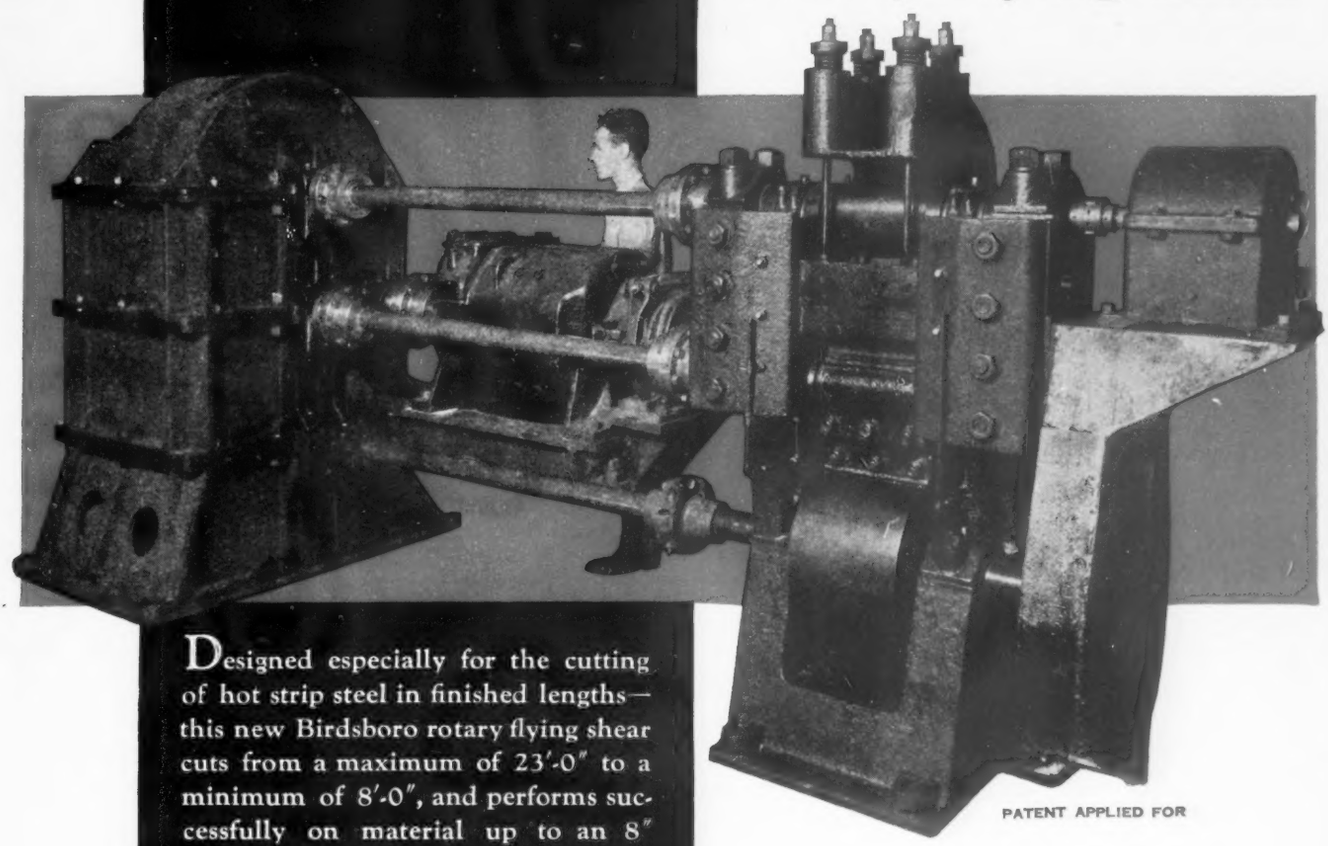
Market Appears Promising

With only three large natural harbors, namely San Diego, San Francisco and Seattle located on the west coastline, and a small natural harbor at Los Angeles, it is obvious that the ungifted, nautically speaking, Pacific coast cities should go in for the open-sea harbor. Civic competition on the West coast reaches heights unknown in the East or South, and the cost of a Dietz-method harbor is comparatively small. Long Beach contemplates a total investment of $14,000,000 which assuredly will be paid off by profits from the harbor itself. In fact, Long Beach industrial agents secured enough pledged business from local and foreign concerns in advance to assure the harbor as a paying venture. Communities that can vote bond issues so easily paid off by profits naturally are interested.

At least seven open-sea harbor sites are available on the West coast. Some idea can be had of the struggle for acquiring harborage when it is mentioned that Stockton, Calif., more than 30 miles inland from the sea, is trying to acquire status as a seaport. Other cities, such as Crescent City and the Marshfield-Coos Bay area, with limited harbor space, can be expected to add to their facilities by open-sea construction. As history has shown, the profits to a community of harborage on the seafront are prodigious. Political effects are equally as great. The principle reason for the backwardness of

and NOW—

MERCHANT LENGTH STRIP from Birdsboro's NEW Rotary Flying Shear



PATENT APPLIED FOR

Designed especially for the cutting of hot strip steel in finished lengths—this new Birdsboro rotary flying shear cuts from a maximum of 23′-0″ to a minimum of 8′-0″, and performs successfully on material up to an 8″ width of ¼″ thickness.

Various lengths of cut are acquired thru three stages of speed reduction made by the synchronization of both mechanical and electrical adjustments. A crank and pitman movement operate the upper knife, while a lower blade runs on stationary bearings and in unison with the reduction unit. Unusual accuracy of ⅛″ on finished lengths is attained.

Correspondence is welcomed on greater detail.

BIRDSBORO

STEEL FOUNDRY AND MACHINE COMPANY
DESIGNERS AND BUILDERS
BIRDSBORO, PENNSYLVANIA

California north of San Francisco in an economic sense, has been lack of sea harborage and sea transportation. Mammoth fruit crops must proceed by methods of transportation that often forbid profitable competition with harbored cities.

Piling Is Being Destroyed

Another and potent reason why the steel industry can expect heavy western development in this direction is that of the northern spread of the marine borer. This slug has been moving steadily northward in the Pacific from tropical waters, attacking wooden piling, until it is now well north of San Francisco. At San Francisco, it is causing considerable damage, its inroads now being estimated at about $10,000,000 a year on the West coast alone. But it also has appeared at Hawaii and the United States government docks in the Philippine Islands, as stated last year by Admiral Sumner E. S. Kittelle, were on the road to ruin unless something could be found to combat the borer. Antioxidizing paint and creosote are measures the borer easily circumvents. Steel piling is the only remedy for the borer, according to dock and harbor engineers. Only one possible alternative exists, and that is, its prohibitive cost; it means the construction of huge concrete boxes that can be towed out and sunk into position.

The strength of the steel piling, put up according to the Dietz method, however, is prodigious. For instance, at Long Beach, it has permitted a fill-in to extend 1616 feet out into the sea, and the United States government and Long Beach are to extend that further until it is a full mile.

A continuous Pacific coast harbor from Mexico to Canada, perhaps including these two countries, is contemplated. With piling made of slow-oxidizing steel and Dietz method construction, there is no preventative reason, except the slow growth of economic factors. The important fact is that here is a present and growing market for American steel piling. German competition is stiff but the coast wants American piling, if it can be made available in quality and price consonant with that of foreign mills.

Radial Engines Produced in Modern Plant

(*Concluded from Page* 46)

pass a third time through the centerless grinding operation.

The production on the rough grinding is approximately 100 per hour, and on the finish grinding 125. The final operation on the piston pins is lapping on a lapping machine. Two lapping operations are carried out, each handling 16 pieces at a time.

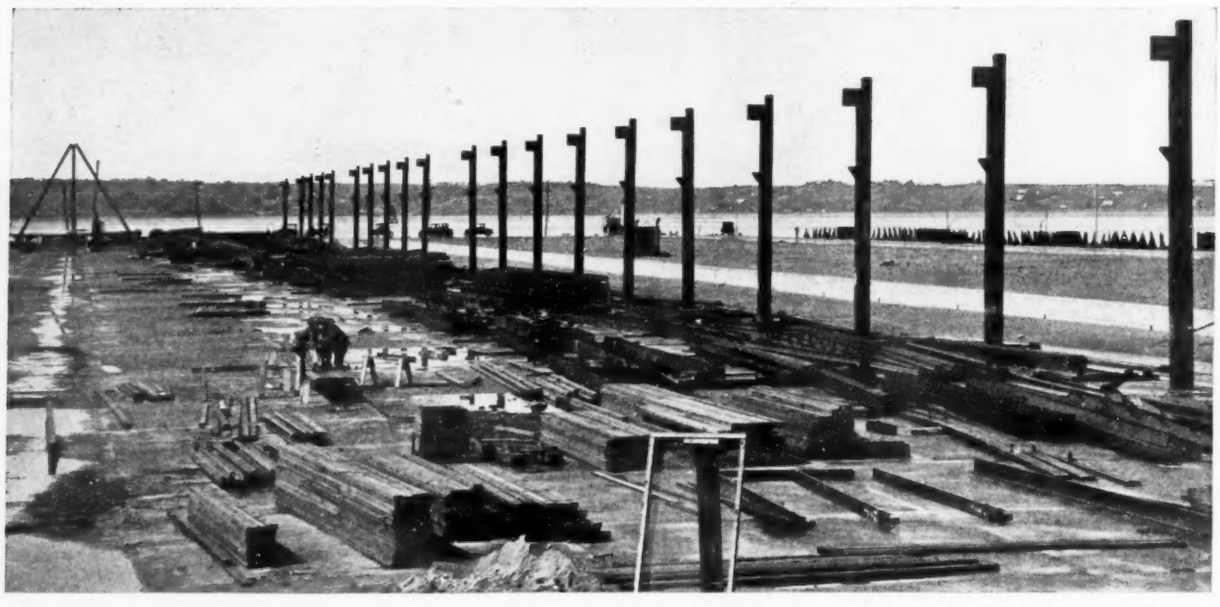
As may be imagined, the grinding of the cam ring is a job calling for the utmost care. Each cam has eight lifts around the circumference of the ring which determine the timing of the valve opening. Cams are ground on a cam grinder on which the position of the grinding wheel is altered by means of a master cam and roller follower. The wheel is held against this master cam by a spring and the movement is synchronized with the movement of the cam being ground, so that with a definite diameter of grinding wheel a predetermined cam curve is generated. The requirements of this particular job are such that the wheel must be maintained accurately at its full diameter which is 3¾ inches. Even a slight wear on the grinding wheel necessitates its change to avoid altering the cam profile.

Carnegie Institute To Hold Third Fuel Conference

Carnegie Institute of Technology, Pittsburgh, announces its third International Conference on Bituminous Coal to be held in that city, Nov. 16-21. The conferences are organized for the purpose of finding new uses for soft coal. By bringing together the best minds in the field of fuel technology, an interchange of ideas and new methods is obtained which keeps the coal industry informed of new processes being used throughout the world.

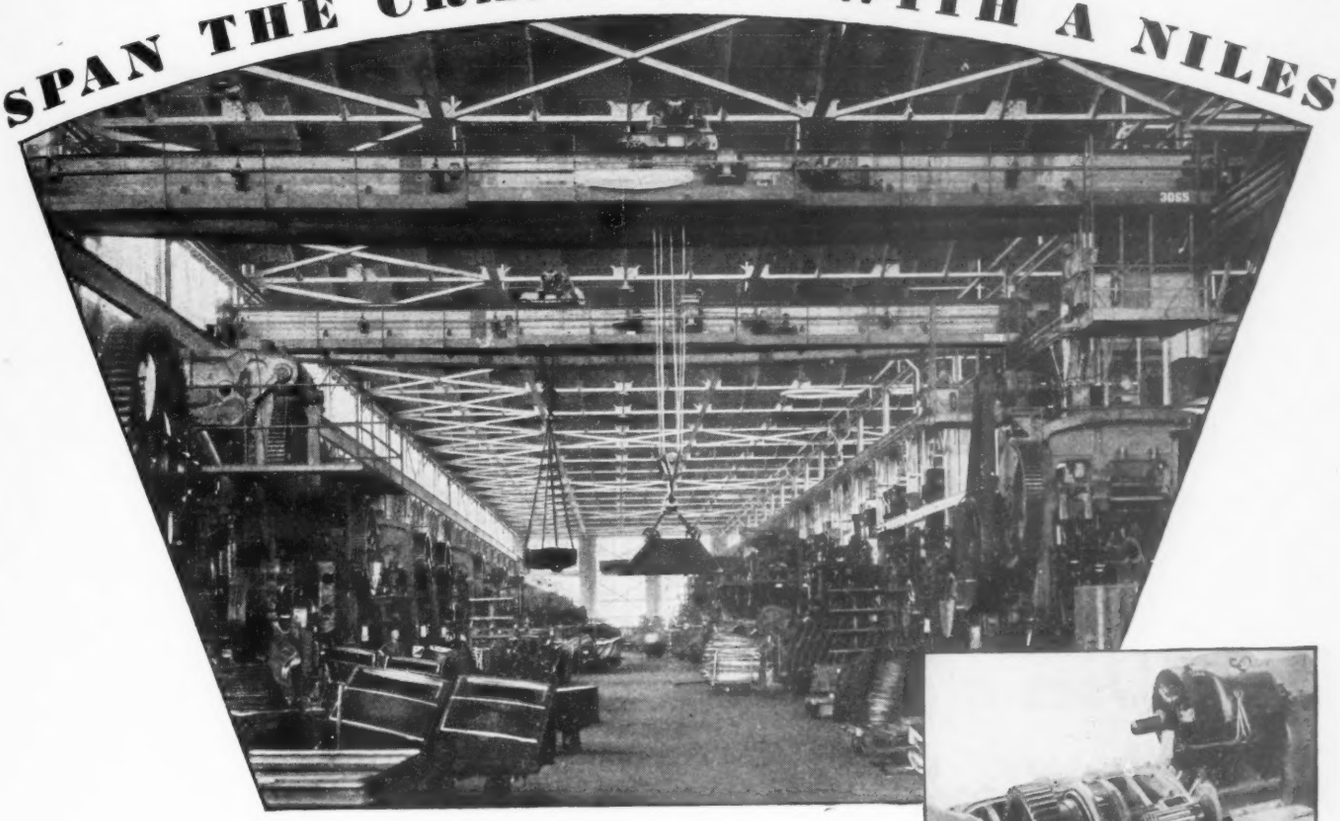
The program this year, according to the preliminary announcement, will include papers on the carbonization, liquefaction and gasification of coal; by-products; the mechanism of combustion; cleaning of coal and its preparation for the market; pulverized fuel; power plants; and domestic heating.

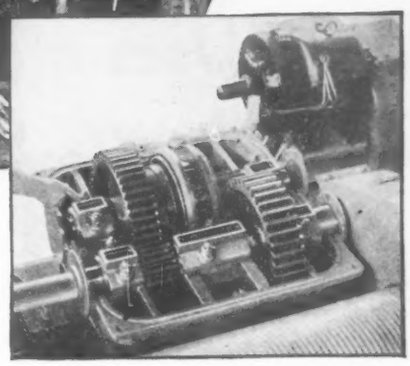
Dr. Thomas S. Baker, president of Carnegie institute, will direct the conference. Serving on the advisory board are: James A. Farrell, president, United States Steel Corp.; John Hays Hammond, mining engineer; Samuel Insull, public utilities magnate; Dr. Frank B. Jewett, president, Bell Telephone Laboratories Inc.; A. W. Mellon, secretary, United States treasury; F. A. Merrick, president, Westinghouse Electric & Mfg. Co.; A. G. Pratt, president, Babcock & Wilcox Co.; H. B. Rust, president, Koppers Co.; M. S. Sloan, president, New York Edison Co.; and W. C. Teagle, president, Standard Oil Co. of New Jersey.



Mole pier at San Diego, Calif., now under construction on filled tideland. Metal piling, stanchions and beams are used throughout

SPAN THE CRANE BAY WITH A NILES





...it has the compact reduction-gear and load-brake trolley

Judge a crane by its trolley —a trolley by its high speed reduction-gear design!

In a Niles, a casting houses these vital members and contains, as an integral part, the bearings that support the gears and load-brake. Rigid support and accurate alignment is permanent.

Proper lubrication to gears, load-brake and bearings is assured by the oil bath. The lubricant cannot leak out, nor can dust and dirt penetrate the tightly sealed housing. In a Niles Crane Trolley wear and the need for maintenance is reduced to a minimum.

So it is throughout every Niles, in Traveling Gantry and Wall Cranes alike. Every part has been detailed to provide the strength and stamina that gives long life and low cost load handling.

NILES CRANE

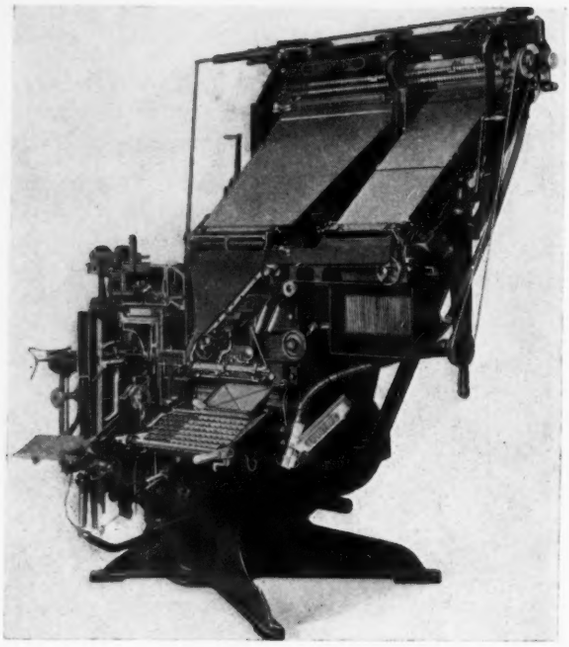
DIVISION OF

SHEPARD NILES CRANE & HOIST CORPORATION

358 North Schuyler Avenue, Montour Falls, N. Y.

Works: Montour Falls, N. Y., and Philadelphia, Pa.

THE MOST COMPLETE LINE OF CRANES & HOISTS IN AMERICA



184th Article

◆

◆

Typesetting Machines

Large Uses of Steel in Small Ways

A TYPESETTING machine is not generally considered a small article, but it is composed of thousands of parts and many of these are made of steel. About 60,000 linotypes have been manufactured and the average weight of a machine is 4000 pounds. The greatest part of this weight is represented by the parts made of cast iron, such as the base. The manufacturer does not disclose the amount of steel used in an average machine, but an expert maintenance man estimates that the modern type of machine contains 250 to 300 pounds of steel of various grades.

More machinery steel than tool steel is used, the manufacturer giving the proportions as two parts of the former to three parts of the latter. Tool steel is employed in making such parts as the molds, vise jaws and the knives which trim the lead slug. The machinery steel is used for such parts as shafts, rollers, magazine elevator, distributor screw and bar. Many of the smaller wearing parts are made of steel.

A competitive machine recently was advertised as having 1000 less parts than a linotype; the parts are so numerous and so many of them subject to wear that when any number of machines are kept in constant operation they must be tended by a machinist, or the operator himself must be something of a machinist.

Complicated as typesetting machines appear to the layman, however, practically all daily newspapers and other publications which must be published "on time" depend on them for their very existence. Linotypes are used in 86 different countries, setting 52 different languages.

How Machine Operates

The entire line, or linotype slug, is formed by bringing together such matrices and spacebands as are required for a line and then maintaining the assembled elements in casting position while molten metal is pumped into a mold and against the face of the assembled line. The machine then completes a revolution, and the linotype slug is pushed out ready for printing. The operation then is repeated until the entire manuscript has been set.

The first commercially operated linotype was installed in the composing room of the *New York Tribune* July 3, 1886, and to Whitelaw Reid belongs the distinction of having created the name "linotype," meaning a line of type.

The machine which was thus at last successfully introduced revolutionized printing because it abolished at one stroke the troubles of individual movable types. It introduced the whole line as a unit of composition, thus reducing the printer's labor to an astonishing degree. It gave the art the vast economy of automatically and instantly producing by a keyboard solid lines of composed and justified type to be used once and then melted down to be used over again in the machine.

Arranges Two-Day Program for Welding Conference

The tentative program for the two-day welding conference to be conducted in Cleveland, Feb. 19-20 under the auspices of Case School of Applied Science and the Cleveland Engineering society has just been announced. In addition to numerous technical papers, the schedule includes a number of demonstrations conducted by eight manufacturers of welding equipment. The program is as follows:

Thursday, Feb. 19

MORNING

Welding demonstrations.

AFTERNOON

"Thermit Welding," by J. H. Deppeler, chief engineer, Metal & Thermit Corp., New York.
"Oxyacetylene Welding," by J. J. Crowe, engineer of research and development, Air Reduction Sales Co., New York.
"Arc and Atomic Hydrogen Welding," by S. Martin Jr., engineer, General Electric Co., Schenectady, N. Y.

EVENING

Address by Fred T. Llewellyn, engineer, United States Steel Corp., New York.

Friday, Feb. 20

MORNING

"Fusion Welding of Pressure Vessels," by J. C. Hodge, Babcock & Wilcox Co., Barberton, O.
"Welding of Machine Parts," by M. L. Eckman, Federal Machine & Welder Co., Warren, O.
"Welding Machine Frames," by A. F. Davis, vice president, Lincoln Electric Co., Cleveland.

AFTERNOON

"Welding of Pipe Lines," by F. C. Outcault, Linde Air Products Co., New York.
"Designing for Welding," by E. P. W. Smith, consulting engineer, Cleveland.
"Testing Weld Structures and Welders," by Frank P. McKibben, consulting engineer, Black Gap., Pa.

British Institute To Meet

The twenty-third annual general meeting of the British Institute of Metals will be held in the hall of the Institution of Mechanical Engineers, London, March 11-12. The general meeting will be held on the morning of March 11, when the report of the council and the report of the honorary treasurer will be presented, and the result of the elections for the council for 1931-32 and of new members will be announced. During the remainder of the day, papers will be presented and discussed, and in the evening the annual dinner and dance will be held at the Trocadero restaurant.

The following day will be devoted exclusively to the presentation of technical papers. As previously announced, the autumn meeting will be held in Zurich Sept. 13-16.

20,000 to 30,000 —In 9 Hours!

In the plant of the National Telephone Supply Company, a Nilson Automatic Four Slide Ribbon Stock and Wire Forming Machine makes twenty to thirty thousand (according to size) telephone cable rings per nine hour day.

This combination power press and four-slide machine gives rapid production of products which have heretofore been made in several operations on a power press. It takes the metal from the coil, straightens, feeds, pierces, embosses, stamps, cuts off and forms.

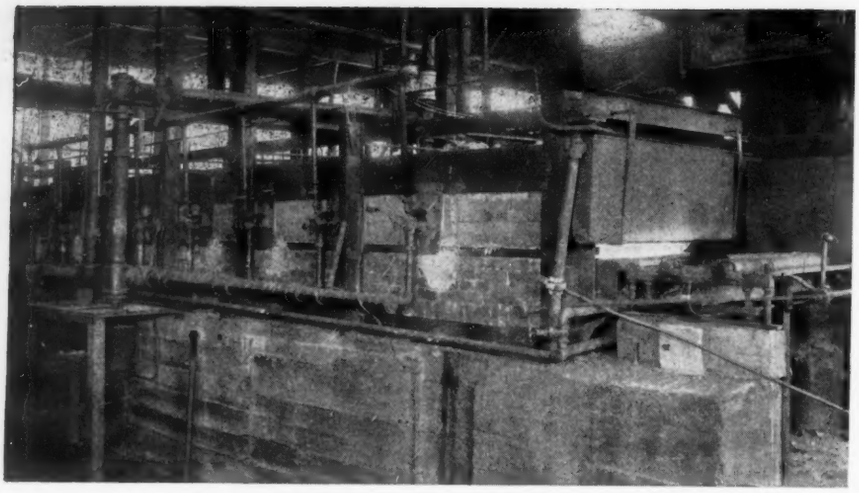
While it has been designed primarily for handling coiled ribbon stock, it is also highly efficient in forming wire.

Built on the same general plan as our regular standard four-slide machines. Forming tools and standard attachments such as secondary cut-off, form lifter, and pin puller are interchangeable with those of our standard four-slide machines. The open construction of the press makes it very convenient for the changing of or the adjusting of the tools.

Bulletin No. 75 gives full details.

The A. H. Nilson Machine Co.

Bridgeport, Conn.



A monolithic chrome hearth is used in this continuous billet heating furnace installed at the plant of the Pittsburgh Screw & Bolt Co., Pittsburgh

Modern Refractories Meeting Increased Service Demands

REDUCED demand for steel products during the past year strangely enough caused the increased loading of many furnace units with resultant tax on refractories. This was particularly true in the case of open-hearth furnaces as the necessity for economy caused the shutting down of many units and the forcing of other units. Nearly all manufacturers of refractories report an increase in demand for materials used for repairs.

Another development of the year was the increased use of monolithic construction in forging and heating furnaces. One company reports that the proportion of installations of monolithic design as against brick construction increased during the year by 100 per cent. A notable modern monolithic installation completed during the year was that of the Sheffield Steel Co., Kansas City, Mo. At the Rockford Drop Forge Co., Rockford, Ill., a battery of 46 oil-fired, in and out, forging furnaces was finished in 1930, all being built with monolithic hearths of chrome-base refractories. One of these furnaces is shown in an accompanying illustration.

Special Designs Numerous

Designers gave more attention to specially designed hearths during 1930 than previously and many installations of grooved or specially shaped hearths were put into satisfactory operation. One furnace with V-grooves, designed for the continuous heating of square billets, has proved highly efficient. The use of chromite ore refractories was extended and one large producer reports increased sales of ground chromite ore from an average of about 4000 tons annually four or five years ago to from 18,000 to 20,000 tons at the present. It is claimed that chromite ore refractories have a greater resistance than magnesite to spalling under damp conditions.

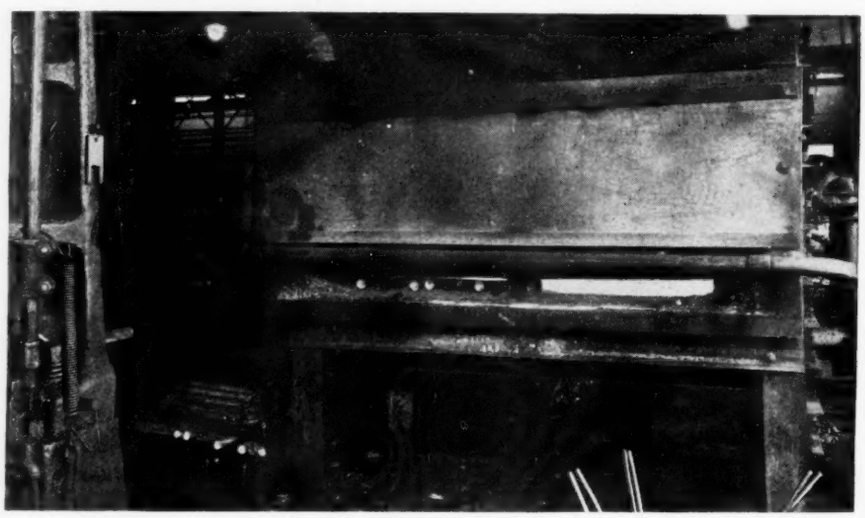
Chromite ore is imported largely from South Africa, with Cuba ranking second in tonnage exported to this country. The third largest source of chromite ore during the year was Greece, with India a poor fourth. Some chromite ore from Russia was brought in and the large deposits in that country certainly will be a factor in the future, although they lie at considerable distance from the seacoast and their transportation to ports is a problem.

Open-hearth furnaces have been constructed to some extent with end panels and upper parts of either chromite or magnesite brick, and these more resistant brick are replacing silica brick not only in the case of open-hearth furnaces but in metal mixers and other places where refractories are used in the manufacture or fabrication of steel. Jones & Laughlin Steel Corp., Pittsburgh; Inland Steel Co., Chicago, and others have installed chromite brick for end panels in open-hearth furnaces. Likewise it is now common practice to use either chromite or magnesite brick for the bottoms of soaking pits and it is claimed that chromite brick gives longer life. The relative prices of refractory bricks varied somewhat during the year. The average prices were about as follows: Chrome brick, $250 per thousand; magnesite brick, $325 per thousand; silica brick, $43 per thousand.

More Firebrick in Use

The trend toward higher temperature and higher pressure in boiler design continued through the year, particularly in the case of power plant boiler installations. The result was a greater use of firebrick and pulverized refractories. Several large installations of slag tapping boilers burning pulverized coal have been built with chromite brick for the boiler furnace hearth and lower sidewalls. For exceedingly high-temperature operation in some boilers, dry or cement refractories are packed between the tubes. The development of acid-resistant refractories has made possible the burning of fuel oil containing large percentages of sulphuric acid which heretofore had been so destructive to furnace brick as to preclude their use. A notable installation of acid resistant

(*Concluded on Page* 63)



One of the 46 in-and-out forging furnaces using monolithic chromite ore hearths, at the plant of the Rockford Drop Forge Co., Rockford, Ill.

Determines Inclusions in Steel by New Method

RESEARCH work on the physical chemistry of steelmaking, as carried out at the Pittsburgh experiment station of the bureau of mines in co-operation with the Carnegie Institute of Technology and the metallurgical advisory board, has covered a series of fundamental studies on the action of oxygen in liquid steel and the applications of the findings to open-hearth operation. During the past year a large number of physical tests have been made on clean and dirty steels from various heats.

The results, according to bureau of mines report of investigations 3054, have shown (1) that the impact value falls off with increasing nonmetallic content; (2) that the ultimate strength, yield point, elongation, and reduction could not be correlated with variations in total nonmetallic content, and that dirty steel gave more irregular results than clean steel on fatigue testing, although the dirty steels did not necessarily have lower fatigue values than the clean steels. These results lead to the thought that segregation and type of inclusion are probably more important than total nonmetallic content. As soon as the problem on deoxidation with manganese and silicon in the open hearth is completed, this phase of the work will be resumed.

Ingots Carefully Inspected

Careful inspection of ingots on all the test heats in this investigation leads to the conclusion that ingot surface is one of the most important factors in determining chipping costs of the grade of steel studied. The control of ingot surface by control of mold conditions, temperature of teeming, other pouring conditions, and deoxidation of the metal is under investigation at present.

The first deoxidizer studied in open-hearth practice was silicon. This study dealt with low and medium-carbon steels and showed that when silicon alone was used as a deoxidizer, silica and silicate particles inevitably resulted in the finished product and that it was extremely difficult to get a fair cleaning of the bath before a reboil commenced. It was found that the larger the particle the more rapid the cleaning of the bath, as would be expected from Stokes' law.

In the past year 25 heats have been made, using manganese, as ferro or spiegel, and silicon pig, special-manganese alloys, and high-silicon spiegel for deoxidation. Of these heats the first 15 were completely reboiled and then made into either rimmed or killed steel, and the remainder were tapped while still dead.

Removal Is Hastened

The elimination of nonmetallic matter was hastened by using manganese, either as ferro or spiegel ahead of the silicon. When using the silicon-manganese alloy and the high-silicon spiegel the elimination was speeded up still further. These results were obtained on heats which were reboiled fully. At this point it was felt that enough data had been accumulated to outline a practice for making low and medium-carbon killed steels with the use of manganese and silicon as alloys which would produce a cleaner steel than could be obtained by the use of silicon alone. Accordingly, a number of heats were made where the bath was killed with silicon-manganese alloys and high-silicon spiegel, and the heats were tapped while the bath was still dead. Two interesting conclusions were drawn from the first few heats studied:

1. Although the heats were fairly clean at the time the metal was tapped, the addition of silicon in the ladle resulted in the formation of silicate inclusions which were found in the pouring tests and ingots. The analysis of the steel in the furnace showed that inclusions present contained more manganese oxide than silica, whereas the steel in the ladle after the addition of ferrosilicon in the ladle contained more silica than manganese oxide. This point leads to the conclusion that either deoxidation must be more complete in the furnace or silicon must not be used in the ladle if the cleanest steel is desired.

In making low-carbon killed steels with high-silicon spiegel it is impossible to use as much of the alloy as desired on account of the carbon content. It therefore was decided to kill two heats in the furnace with as much high-silicon spiegel as could be put in without going above specifications for carbon and to complete the deoxidation in the mold with aluminum. The heats so treated showed a low aluminum consumption in the molds, the amount used being about 1.5 ounces per ton of steel. The finished steel showed a low chipping cost and extremely low rejections due to surface defects, and was also as clean low-carbon steel as has been observed in our laboratories. This procedure is being followed on other heats of steel.

2. It was found that the addition of a small amount of ferromanganese in the furnace after the heat had been killed with the silicon-manganese alloys was effective in cleaning up residual oxides in the metal. Accordingly, the present furnace practice in making low-carbon killed steel is to add the high-silicon spiegel, allow the bath to lie dead for 8 to 12 minutes, add ferromanganese to meet specifications, and then tap the heat 10 to 15 minutes after the ferromanganese addition. At present, comparison is being made between steels treated with ferrosilicon in the ladle and with aluminum in the molds. These developments have opened up a new subject for research—namely, the possibility of using a double deoxidizer in the ladle rather than straight ferrosilicon, as addition of the latter to the ladle inevitably results in silicate inclusions in the ingot.

It is interesting to note that during the past year, 25 heats have been studied completely, whereas it required some 2½ years to complete the investigation of 12 heats of steel treated with silicon. This increase in the number of heats studied per year is due primarily to the three improvements in methods of analysis—namely, the determination of FeO in liquid steel by deoxidation with aluminum, and the determination of nonmetallic content of steel by the inclusion-count method and by the electrolytic method.

Analytical Methods Developed

In view of the unreliability of the hydrogen-reduction method for determining FeO in liquid steel, a new method has been devised in which the liquid steel is killed with aluminum and the Al_2O_3 determined by chemical analysis. The oxygen and Al_2O_3 are calculated to equivalent FeO and the results are expressed as such. This method has been used during the past year on all heats studied.

Another method of interest in determining inclusions in steel is the inclusion count. This method involves a counting of the number of particles in a piece of cast or rolled steel and a calculation of the relative areas of inclusions and steel. From the densities of the two materials it is possible to calculate the percentage of nonmetallic matter in the steel.

One of the most important factors in the entire work has been the development of the electrolytic

method for the determination of nonmetallic inclusions in steel. This method consists in electrolyzing a solid sample of steel in a solution of ferrous sulphate and sodium chloride, the strength of the solution being 3 per cent ferrous sulphate and 1 per cent sodium chloride, in water for killed steels, and 2 per cent ferrous sulphate and 0.5 per cent sodium chloride for rimmed steels or any steels where manganese oxide predominates. The sample is sawed to a size about 1 inch square by 4 inches long, drilled in the top, and soldered to a platinum wire, and acts as the anode in the cell. The sample is suspended in a collodion bag made from a solution of collodion in alcohol and ether; the bag is filled with the ferrous sulphate solution and then immersed in the main ferrous sulphate solution which is contained in a copper tank.

The current used is about 1 ampere per sample and the amount of iron dissolved is approximately 1 gram per hour; 24 to 36 grams of steel is dissolved, the bag then is removed from the tank, washed carefully, and the steel sample and contents of the bag are washed into a beaker. The inclusions then are analyzed for MnO and SiO_2. If alumina is desired on the sample it is general practice to determine alumina directly rather than to attempt to separate the alumina from the iron which is present in the inclusions as contamination from the electrolysis. The residues from the electrolysis may be dried and screened so that the inclusions are separated into different sizes suitable for micro-examination or for analysis. This method also has been used on rolled steels and some remarkable results have been obtained in the separation of the inclusions so that the stringers of silicate may be examined under the microscope. This method was used in the work on the study of deoxidation with manganese and silicon alloys.

Steel Founders in Annual Meeting Review Progress of Past Year

IMPORTANT accomplishments of the Steel Founders' Society of America during 1930 were reviewed by reports of chairmen of the various committees at the annual meeting of the society in Cleveland, Jan. 28-29. Statistical work under a committee of which C. A. McDonald, Sivyer Steel Casting Co., Milwaukee, is chairman, has included reports on bookings, inquiries, operation and shipments, comparative data on expense items and the compilation of the 1930 directory of manufacturers. S. W. Utley, Detroit Steel Casting Co., Detroit, outlined membership work which has been carried on in various centers and which has resulted in a marked increase in the society's roll. R. J. Doty, Reading Steel Casting Co., Reading, Pa., reported on technical developments and enumerated the work which has been done by the society in co-operation with other technical organizations dealing with problems of improvement in product and matters of specification.

Promote Steel Castings

T. H. Harvey, Ohio Steel Foundry Co., Lima, O., chairman of the merchandising committee, told of the plans for advertising steel castings and supplying information concerning member companies' product. This at present will be limited to a direct mail campaign and to advertising in business papers in co-operation with individual members. A meeting to be held in Columbus, O., March 19-20, will be devoted to discussion of sales problems and policies. The industrial research committee of which Harold S. Falk, Falk Corp., Milwaukee, is chairman, told of the development, adoption and general use of a code of standard trade customs for steel foundries which has been fostered by the society.

At a luncheon session Hugh S. Hanna, department of labor, Washington, gave a careful explanation of the British unemployment insurance system.

In his annual report as managing director, Granville P. Rogers reviewed the major activities of the society since its reorganization about one year ago. The accomplishments have included building a business structure, increasing the membership to 78 from the original nucleus of 48, definite advancement in cost work including the adoption of a uniform cost system, the formulation of trade customs, the defense of steel castings against misrepresentation by competing manufacturers, the discouragement of further excess capacity, compilation of monthly reports, surveys of power rates and schedules, tax rates, etc., the publication of a complete directory including information on capacities and personnel of member plants, promotion of publicity and co-operative work in advancing the interests of the entire steel castings industry.

Mr. Rogers deprecated the condition confronting steel foundries in common with many other lines of industry which made profitable operation of American industries from 1922 to 1929 difficult, and impossible under present conditions of depression. He remarked on the proposal made some months ago that a commission should be appointed to study this condition and referred to the attention directed by President Hoover to this problem and the referring of this matter to study by the senate judiciary committee, of which Senator George W. Norris is chairman. On Mr. Rogers' suggestion a committee of three was appointed to advise with Senator Norris in this matter.

Improvement Is Indicated

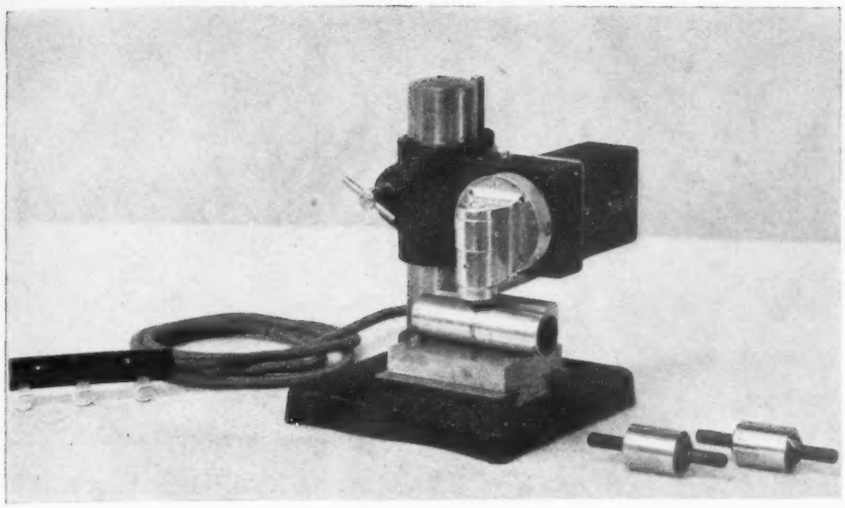
Reports of individual members indicate that while railroad work is exceedingly slack, some indications point to improvement in miscellaneous castings demand. The majority of members reporting noted improvement in inquiry and better operation in January than in December.

On report of the nominating committee, the following officers were elected by unanimous vote: President, W. H. Worrilow, Lebanon Steel Foundry, Lebanon, Pa.; vice presidents, G. R. Casey, Treadwell Engineering Co., Easton, Pa.; W. W. Powell, Mesta Machine Co., West Homestead, Pa.; Arthur Simonson, Falk Corp., Milwaukee; Burtner Fleeger, Oklahoma Steel Castings Co., Tulsa, Okla.

The following directors also were chosen: J. E. McCauley, Birdsboro Steel Foundry & Machine Co., Birdsboro, Pa.; Frank Glosser, Commercial Steel Casting Co., Marion, O.; F. A. Lorenze, American Steel Foundries, Chicago; C. A. Binder, St. Louis Steel Casting Co., St. Louis; H. E. Muchnic, Locomotive Finished Material Co., Atchison, Kans., and E. H. Cornelius, Oklahoma Steel Casting Co., Tulsa. F. J. Stanley, Michigan Steel Casting Co., Detroit, was elected to fill the unexpired term of S. Wells Utley, Detroit Steel Casting Co., who resigned his position as director due to added responsibilities in connection with other organizations of which he is an executive.

Following the general meeting separate sessions of the heavy and light casting divisions were held. At the latter the question of advantages and disadvantages of mechanical equipment in a steel foundry was debated by Joseph L. Tillman, Jr., and R. F. Tillman, Industrial Steel Casting Co., Toledo, O.

J. G. Brill Co., Philadelphia, has received an order for 50 street cars from the Brooklyn and Queens Transit Co., Brooklyn, N. Y.



Electric gage head and stand for measuring outside diameter; also two master disks used in calibrating the gage

Electric Gage Provides Speed, Accuracy of Measurement

AN ELECTRIC gage which measures 0.00001-inch and then magnifies that infinitesimal dimension 10,000 times so that the average workman may read the result speedily and accurately, has been developed by the general engineering laboratory of the General Electric Co., Schenectady, N. Y.

The electric gage grew out of necessity. A feature of electric refrigerators manufactured by the General Electric Co. is that all moving parts are sealed in oil for all time. There can be no wearing points, since there must be no friction. Numerous methods are known of obtaining accurate measurement of parts, but no means of combining accuracy with speed—and speed is an essential element from the production cost standpoint. The electric gage is claimed to solve the problem.

Variations Are Indicated

In one process it is necessary to gage the crankpin hole in pistons. The piston is placed over a spindle and rotated once, while the operator watches the pointer on a scale, as shown in an accompanying illustration. Approximate limits beyond which the work is rejected are indicated, the "accept" limit in this case covering 3 inches on the scale and representing 0.0003-inch on the work. The gage can pass hundreds of thousands of pistons with no renewal or refinishing of parts, whereas the usual paddle-type "go" and "no-go" gages formerly used passed only 400 pistons before requiring refinishing.

The new gage is suitable for almost any type of measurement, with certain changes in the set-up. It may be used to measure outside dimensions of automobile wristpins, inside dimensions of automobile cylinders, and thickness of flat materials such as sheet steel or paper. One interesting application in the General Electric refrigeration department is a set-up to measure the distance between the center lines of two holes in the main frame of a motor, to determine the parallelism of the center lines.

Mass production in the automotive industry has made a real field for the application of the electric gage, and the Ford Motor Co. and the Chrysler Corp. are experimenting with it.

The gage consists essentially of a contact point supported to move through a limited distance in the direction of measurement, say 0.0005-inch. This movement causes a pointer to travel 5 inches over the scale of an indicating instrument. The 10,000-magnification of movement is obtained by unbalancing a bridge circuit of four inductances. A 500-cycle alternator supplies power to a small transformer which, in turn, supplies power to the four inductances. Two of these are small coils in the electric gage head, which is about 5 x 2½ x 1½ inches in size. The inductance is varied by the movement of a pivoted steel lever armature, one end of which moves between the coils as the contact point on the other end conforms to the surface of the piece being measured.

High Wearing Qualities

The contact point is in the gage spindle which is made to fit the work. Two other inductances of the bridge, together with the transformer and indicating instrument, are mounted in an indicating unit, 12 x 12 x 12 inches in size, which is placed in plain view of the operator.

The high wearing qualities of the spindle of the electric gage have been obtained by having the bearing surfaces made of cemented tungsten carbide. The contact point which explores the piece is a diamond and contact pressures are sufficiently low so that the material being gaged will not be scratched.

The gage is calibrated in place simply by adjusting the distance be-

Electric gage in operation; pieces to be inspected are placed on the spindle in the foreground and their measurements indicated on the large ammeter in the face of the cabinet

EVERY BEARING A ROLLER BEARING

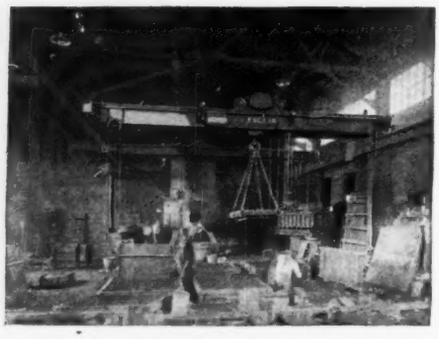
A New and Greater Euclid
built for new and greater use

THE old gives way to the new.

Exceeding in strength, endurance and compactness any units of similar capacity ever leaving the Euclid factory, the Type 12 Euclid Hoist provides advantages never before obtainable to the same degree in any one hoist.

Hyatt heavy-duty roller bearings *on every shaft*; every load-carrying part of *steel*, from the trolley wheels, trolley frame and hoist frame through the wide-face, coarse-pitch gears and heavy shafts, to the fully enclosed hook-block; new positive load-brake of the most efficient type yet developed—these indicate the reasons behind the new records for performance.

Extreme low headroom in addition, plus the feature making it possible to mount hoist either parallel with or at right angles to beam, amply suggest why every hoist user should have a copy of the new Euclid Type 12 bulletin. Write for yours—today!

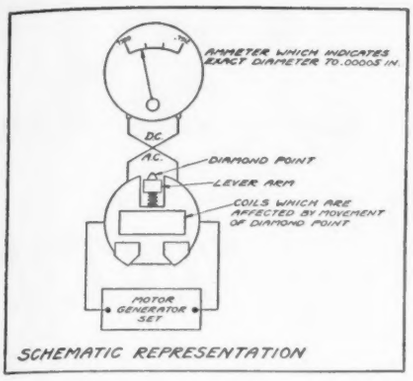


One of 5 Euclid Cranes in use in the Meech Foundry Company, Cleveland, Ohio.

CRANES
EUCLID
AND HOISTS
"Raise Profits"

THE EUCLID CRANE & HOIST CO.

840 CHARDON RD., EUCLID, O.



Schematic representation of motor-generator, gage head and indicating ammeter

tween two small coils in the gage head so as to bring the pointer on the scale as desired. This is done with suitable master ring gages of the minimum and maximum limits. In applying the gage to the innumerable varieties of parts in present-day production the indicating unit, gage head and power supply are similar for practically all applications. The spindle and the mounting of the gage head vary with the application.

Recording instruments for use with the electric gage are being developed; and relays for controlling operations based on thickness of material can be applied.

Modern Refractories Meet Increased Service Demands

(*Concluded from Page* 54)

refractories was completed during the year at the Deep Water power plant, Deep Water, N. J.

In some districts where mica schist is prevalent, this material has been used in furnace construction laid up with chromite ore cement. One large Canadian plant during the year completed a 100-ton basic open-hearth installation with an unusual hearth construction. Over the usual brick subhearth a 6-inch layer of coarse aggregate chromite ore was burned in to form a monolithic section between the magnesite open hearth and the subhearth.

The fact that chrome brick has a high salvage value often makes its use more economical than silica brick where no salvage value exists. Chrome bats have been used successfully for lining charging doors.

Sales of chromite ore are reported at about 2½ pounds per ton of steel produced during the past year. This compares with 1 pound per ton of steel the previous year. On the other hand, one large producer states that the sales of magnesite brick in thousands per ton of steel produced were as high in 1930 as in 1929.

A new development in magnesite brick occurred during the past year. Although still too new to have much operating history, it is plain that it will have a marked effect on the use of magnesite brick in the future. The new brick is produced with far greater pressure than that heretofore used and a chemical bond is secured which obviates the necessity for any burning in the brick form. This appreciably reduces the price of the brick and many advantages as to quality are claimed as well.

In the purchase of refractories nearly all interests report greater cooperation between the user and the seller. Individual problems of the user are being given more careful attention and greater discrimination is being exercised in the purchase of brick. Steel producers have long followed the practice of studying users' problems and adapting grades of steel to suit. Refractory manufacturers have been accused of being negligent in this respect but now appear to be realizing their new responsibilities.

Effective Standards Listed

Standards and tentative standards of the American Society for Testing Materials effective September, 1930, have been published in index form by the society. The index, published yearly, is a compilation, under appropriate key words, of titles of 427 standards and 155 tentative standards, together with the volume references to the publications in which they appear. The booklet also includes a list of the society's publications and a list of the standing committees.

Height of Present Skyscrapers Will Be Exceeded in a Few Decades

BUILDINGS 1200 feet tall are being considered and within the next few decades many structures probably will be erected which will exceed the height of present skyscrapers. This statement was made by H. V. Spurr, chief engineer, Purdy & Henderson Co., New York, at the seventy-eighth annual meeting of the American Society of Civil Engineers held recently in New York. Bracing of skyscrapers and other tall buildings against the effect of high winds was a subject receiving wide discussion.

Stiffness Is Factor

Stiffness of buildings rather than their strength is the important factor in planning wind bracing, in the opinion of C. R. Young, professor of civil engineering, University of Toronto, Toronto, Ont., who stated that wind velocity has passed 90 miles an hour on at least 27 recorded occasions in this country. Wind velocity, he said, increases with height. D. C. Coyle, consulting engineer, New York, advanced the information that the "slowest" building in New York requires 4 seconds to complete its "give" pressure. Older buildings, built primarily with the idea of strength, which results in producing stiffness, have a higher frequency of sway than newer buildings built along different lines. Discussion indicated that opinions differ as to the amount of sway desirable.

Prof. W. H. Wilson, University of Illinois, Urbana, Ill., pointed out that little exact knowledge exists on the details of connecting girders used for wind bracing with the supporting columns of buildings. E. B. Goodrich, engineer, New York, said his investigations showed that suction on the leeward side of a building in a high wind is almost identical with the increased pressure on the windward side. He added that wind bracing involves from 1 to 3 per cent of the total construction cost of a building.

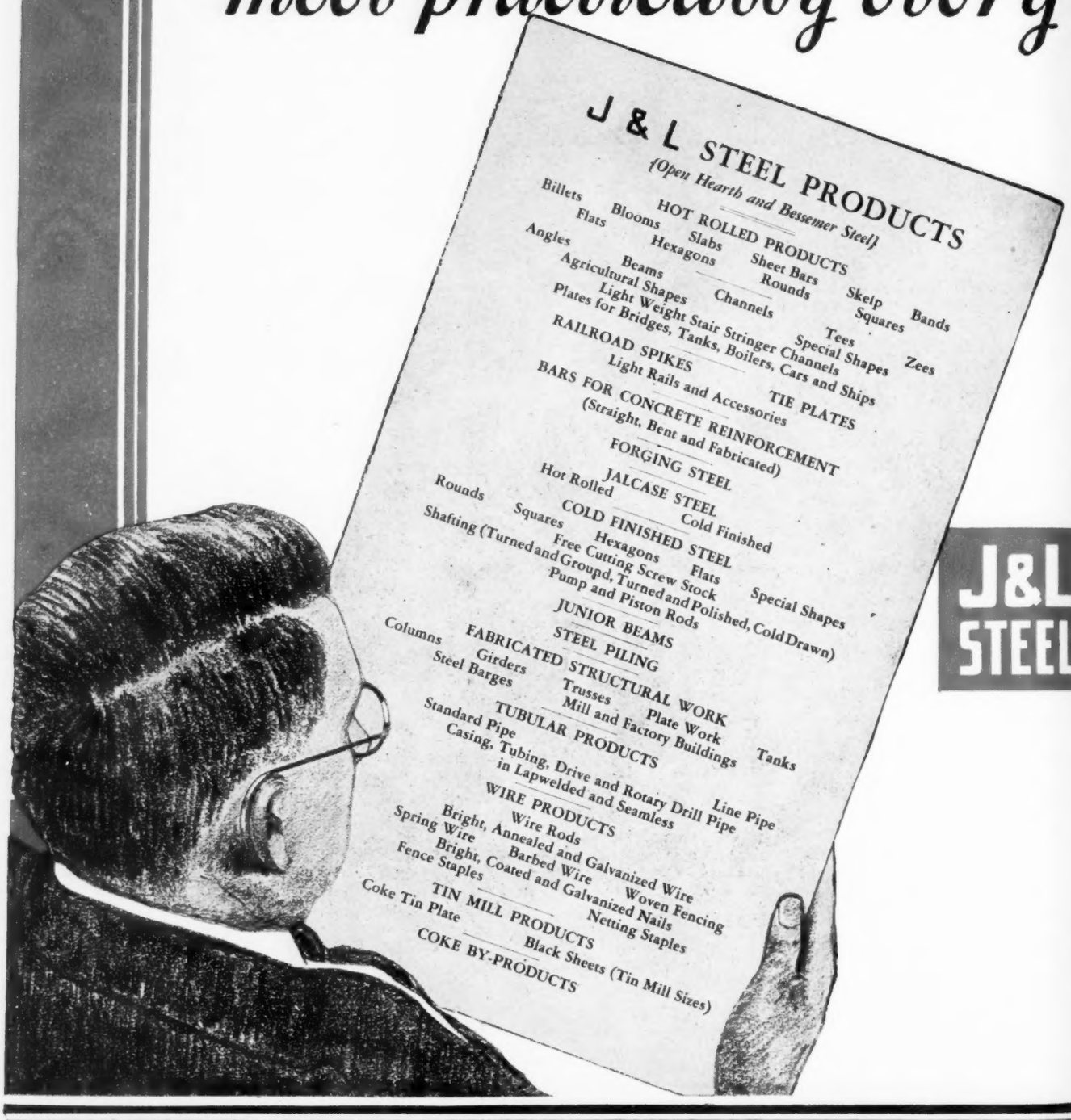
Calculate Wind Pressures

H. G. Balcom, consulting engineer, New York, revealed that a horizontal force of 50 tons, applied to the top of the mooring mast on the Empire State building, was used in the calculations for the pull from a dirigible. He said: "Though the wind pressure on the mooring mast and the pull of a dirigible produced quite a little effect on the wind bracing near the top, the effect was only about 7 per cent of the total wind pressure in the north and south direction. The total was 4,340,000 pounds, of which 318,000 pounds represented the wind pressure on the mooring mast and the pull from a dirigible moored to the mast."

In connection with the meeting there was displayed a new instrument for long-range detection and instant recording of swaying buildings or rapidly moving parts. The device can be used on almost any moving part of an airplane and has already been used in determining stresses in the driving rod of a locomotive moving 90 miles an hour and the strains in the rail as each wheel passes. The instrument, known as a magnetic extensometer, was developed in the research laboratory of the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.

J & L

meet practically every



JONES & LAUGHLIN STEEL

AMERICAN IRON

J & L *Sales Offices:* Atlanta Boston Buffalo Chicago Cincinnati Cleveland Dallas Detroit Denver Erie Los Angeles Memphis Milwaukee Minneapolis New York Philadelphia Pittsburgh St. Louis San Francisco Washington

Scanning the Technology of Steel

A Digest of Important Developments in Scientific Research, Engineering Progress and Operating Procedure Pertaining to the Production, Processing, Application and Performance of Steel

USES:

Pipe Lines

The 1930 boom in the construction of pipelines, described by O. E. Andren, Class & Industrial Marketing, January, 1931, p. 32, 3 pp., 2 illusts.

Credit in a large measure must be given to pipeline activity not only for reducing possible unemployment to an appreciable degree in 1930, but also for placing hundreds of millions of dollars in circulation. Pipelines 20 to 24 inches in diameter are now common, with the industry looking toward 30-inch pipe as a necessity for obtaining the large volume required in supplying the needs of large centers. The larger, heavier sizes of pipe have demanded the origination of methods and the use of equipment not formerly thought to be applicable to pipeline construction; the vast mileage of smaller pipe laid in 1930 caused a greatly increased demand for improved equipment; consequently, manufacturers of equipment, widely diversified in nature, have enjoyed business that has been a revelation to many.

—STEEL—2-5-31

FABRICATION:

Welded Steel Pedestals

Determination of the stresses set up in welded steel pedestals designed to support the ends of bridges, developed by James H. Edwards, H. L. Whittemore, and A. H. Stang, in research paper No. 232, of the bureau of standards, 9 pp., 6 illusts., 3 tables.

Two welded steel pedestals were tested in compression and a study of the stress distribution was made. In one of the pedestals, the inclined plates did not touch the bottom plates, and the parts of the pedestal could be clamped in their proper relative position before welding the inclined plates to the bottom plates. The stress distribution in this pedestal was uniform over the inclined plates and the stiffeners at mid-height.

The inclined plates of the other pedestals were machined so as to fit directly between the top and base plates and a fillet weld was used to maintain the relative position of the plates. The stresses in the stiffeners of this pedestal were more than twice as great as the stresses in the inclined plates for loads in the designed working range.

It was evident that the uniform distribution of stress in the first pedestal was due to the even bearing obtained by the use of the large weld between the inclined and base plates. The maximum strengths of the two pedestals were, however, about the same and more than six times the load for which they were designed.

—STEEL—2-5-31

PRODUCTION:

New Forging Defect

Cause and cure of a new surface defect on forgings, discussed by W. E. Jominy and A. M. Steever, in Metal Progress, January, 1931, p. 94, 4 pp., 4 illusts.

Blemishes appear carburized in areas adjacent to decarburized areas, this phenomenon occurring presumably in the same furnace at the same time. All evidence points to the carburization of the steel by contact with coke formed in the oil-fired furnace. It also may be possible that a shaft of oil or oil vapor could strike the steel placed near the burner and carburize it in a limited area, even though the atmosphere is decarburizing. To eliminate these defective spots it is necessary to prevent or minimize the formation of the coke in the oil fuurnace, or to prevent the coke from coming in contact with the steel.

—STEEL—2-5-31

Steel Plant Water Supply

Volume of water that is required for steel plant cooling systems, discussed by T. J. McLoughlin, in Proceedings of the Engineers Society of Western Pennsylvania, Pittsburgh, November 1930, p. 295, 8 pp. 1 table.

From 14,000 to 17,000 gallons of water is required for cooling purposes in the production of 1 ton of steel. A typical example of water requirements for the blast furnace proper, in gallons per 24 hours, amounts to 5,766,100 gallons. The volume of water utilized for open-hearth furnaces varies over wide limits but ranges from 2000 to 3000 gallons for each ton of ingots produced. A typical installation on the rolls of a blooming mill showed that 13,000 gallons an hour was used. The bearings on the same mill consumed 3600 gallons an hour. A 3-high roughing mill with 7 passes required 37,500 gallons an hour for cooling of rolls and 8000 gallons an hour for cooling of bearings. A 21-inch 6-stand billet mill used 40,000 gallons an hour for cooling of rolls and 18,000 gallons an hour for cooling of bearings. Water requirements of a typical steel plant are presented in tabular form.

—STEEL—2-5-31

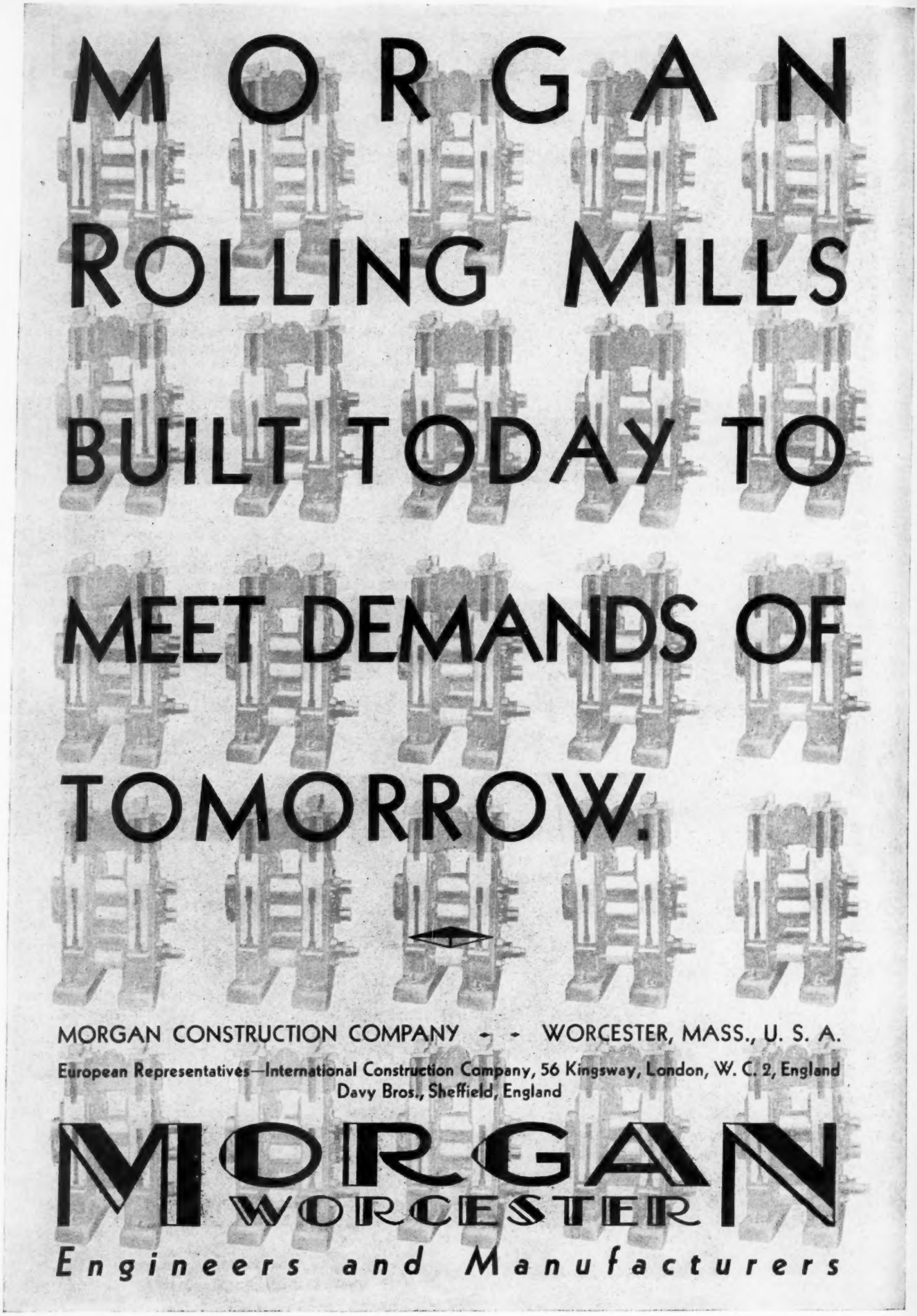
MISCELLANEOUS:

Lubrication

Elements of correct lubrication practice with regard to bearings, in Iron and Steel Engineer, December 1930, p. 583, 2½ pp., no illusts.

To select the proper lubricant for a given bearing application requires consideration of the following factors: The size of the bearing; the speed of the shaft; the bearing pressure; the bearing temperature during the operation; the film-forming conditions, such as the bearing clearance; and the method of lubricant supply. A further factor is impurities, such as water, dust and the like. There are two general types of lubricants in use—oils and greases—and each type has its legitimate application, which depends on operating conditions, design of bearings, speed, pressures, and other special conditions. Each of these factors and the grades of lubricants is discussed and the author lists the principal causes of bearing troubles.

—STEEL—2-5-31


MORGAN
ROLLING MILLS
BUILT TODAY TO
MEET DEMANDS OF
TOMORROW.
MORGAN CONSTRUCTION COMPANY - - WORCESTER, MASS., U. S. A.
European Representatives—International Construction Company, 56 Kingsway, London, W. C. 2, England
Davy Bros., Sheffield, England
MORGAN
WORCESTER
Engineers and Manufacturers

Machine Tools and Plant Equipment

«Without machine tools modern machinery could not be built.»
—Joseph W. Roe

Critical Design Analysis Improves Machine Tool Efficiency

WITH various new high-speed cutting materials threatening to revolutionize machine tool design, the importance of certain other engineering trends is apt to be overlooked. Among these trends, the analysis of designs to discover ways and means of increasing efficiency by cutting down on the time of so-called "idle," or nonproductive movements, is significant. Such analysis has brought about surprising increases in production and at the same time has improved quality of work and has increased machine life by eliminating undue shocks and vibration. The benefits have been particularly marked in the case of machines of multiple-spindle, and of station-to-station type, but by no means are confined to these.

Considerations Involved

Primarily, this kind of analysis involves considerable mathematical computation and work with theoretical mechanics. It is one of the most obvious signs that "rule of thumb" methods of design rapidly are becoming obsolete in the machine tool industry. Leading machine tool companies even are finding it desirable to refer these problems to the engineering departments of universities. In at least one instance, a professor of mechanical engineering of a leading university is retained as consultant in theoretical mechanics by a well-known machine tool company.

In this particular case, theoretical conclusions have been translated into comparatively simple design changes which have had an almost revolutionary effect upon the quantity and quality of output and general performance of an entire line of important machines. Like an x-ray, the analysis revealed deficiences in the old designs which never could have been discovered by what frequently are miscalled "practical" methods.

Some of the results of analytical design are: Proper balancing of revolving parts; eliminating shock and strain by application of uniformly accelerated and retarded motion to intermittently revolving parts such as turrets; lightening of reciprocating parts, such as slides, by ribbed construction or by the use of strong, light alloys; counterbalancing of reciprocating parts which cannot be lightened materially; and redesign of clutches, gears, shafts and other elements to insure against overloaded or excessively oversize units. There are numerous other benefits and the list rapidly grows longer.

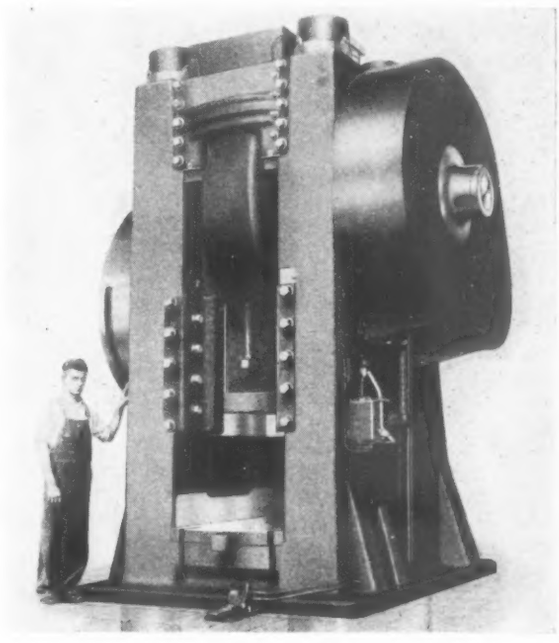
Machine tool builders who are striving to keep their designs thoroughly up to date will do well to investigate what theoretical analysis will do for their lines. They are apt to be surprised by important discoveries which will come as a result of comparatively small expenditures in this direction. At the same time, the field of trained mechanical engineers in machine tool design is broadened most decidedly. High-speed, high-production machine tools are not going to be built by progressive companies before the theories underlying their performance are worked out by approved engineering methods. Guesswork has no place in modern machine tool design.

◆

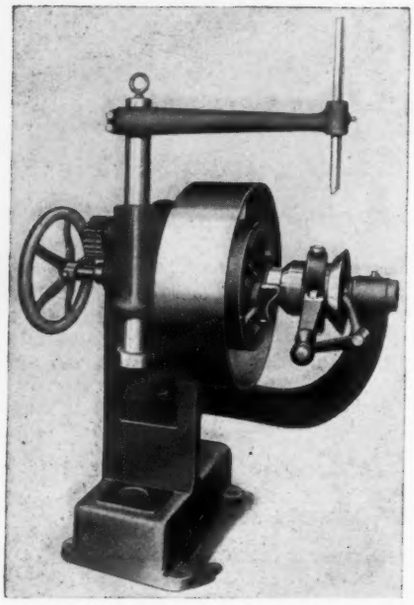
Fast Coining Presses Do Accurate Finishing

National Machinery Co., Tiffin, O., announces a new design of coining or finishing press. This line of machines, as shown by one in the accompanying illustration, not only features unusually rugged construction, but also embodies novel and interesting mechanical features. Unusually high speed on hot, semihot or cold coining, swaging and forming operations is claimed for these presses by the builder.

It is pointed out that the accurate coining operations possible on these presses eliminate many facing, milling and other cutting operations ordinarily required for the finishing of metal parts, and justify description as high-production machines for accurately and economically sizing parts by pressure. Extreme pressures required for this kind of work heretofore have limited it to slow operat-



New design features which increase rigidity, power, accuracy and speed, characterize this press. It is one of eight sizes capable of doing ordinary hot or cold coining, swaging and forming, as well as accurate finishing operations by "pressure machining" methods



This arbor press is equipped with tapered roller bearings

ing presses. At speeds now possible, pressure sizing becomes economical.

The massive frames of these new presses are one-piece steel castings, base, crown and columns being included in one unit. The unit is of rigid box section, with cross members cast integral, and the design permits unusually short distance between die seat and main shaft. Initial compression is given to the frame by four heavy tension bars which are shrunk in place in bored holes.

Advantages of Overarm Slide

There are but three bearings between the power source and its point of application, toggles, knuckles and numerous joints being avoided. An overarm slide is used, this extending over and above the eccentric shaft to form an extended pilot bearing which gives greatly increased support. This long, narrow slide construction provides ability to withstand off-center pressure and still have true straight-line travel.

A one-piece nonadjustable pitman is mounted in plain bearings of large diameter, adjustments for die height being provided for by a large wedge on the bed frame. A full-eccentric main shaft of large diameter eliminates depressions and crank cheeks, which insures unbroken longitudinal fibers and absence of spring. The upper main bearings support the shaft up to the faces of the eccentric and therefore close to the center line of the load. The lower half of the shaft bearing housing is supported in the bed frame by an accurately fitted tapered wedge-block which serves to give adjustment to the main bearings.

A quadruple abutment clutch starts the press in a quarter of a revolution, and an air operated trip is used. This operates the clutch instantly at a mere touch. A flywheel with friction-slip hub protects press, dies and motor against overload and sudden jams.

Both upper and lower die seats have outside operated knockouts permitting quick removal of work and leaving clear space between columns.

The countershaft is equipped with roller bearings. All bearings are lubricated by a high-pressure oiling system. Side wear of the slide can be accurately compensated by wedge adjustment, and adjustable bearing caps provide for its front and back adjustment. All slide wearing surfaces have removable liners. Bronze bearings, slide surfaces and similar parts are scraped in by hand and the entire machine is built to fine machine tool standards. The line includes eight sizes, ranging in weight from 19,000 to 368,000 pounds.

◆

Line of Arbor Presses Has Numerous Applications

Edwin E. Bartlett Co., Nashua, N. H., announces additions and improvements to its line of arbor presses. This line of presses now includes nearly 40 machines, both hand and power-driven, horizontal as well as vertical types. They will handle practically every kind of pressing and forcing work, including assembling, opening of moldings, straightening, setting and removing arbors, etc.

The press shown in the accompanying illustration is one of the vertical type with power drive and quick-action clutch control. This press is one of several, both of the hand and power-driven types, which are equipped with tapered roller bearings. This unusual feature is said to cut down materially on the power required, at the same time contributing to smoothness of operation. Others of the power-driven machines are equipped with cam drive which allows for repetitive operations on production work. A complete line of fixtures and attachments is provided for the standard presses, and in cases presenting unusual problems, specially designed presses are built to order.

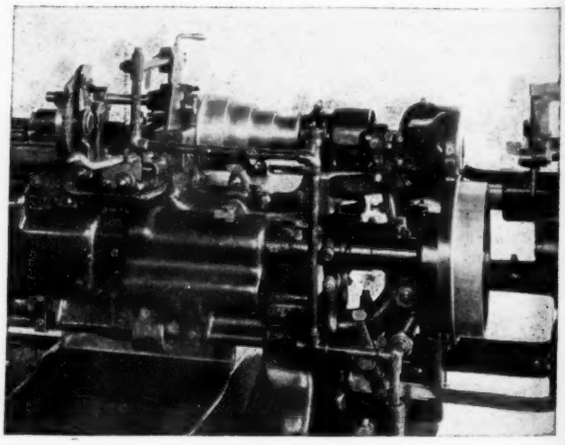
◆

Roll Feed Device Increases Screw Machine Output

Brown & Sharpe Mfg. Co., Providence, R. I., announces a new roller feed and timing mechanism for use in connection with automatic screw machines built by this company. The accompanying illustration shows this mechanism as it appears when mounted on a machine in operating position.

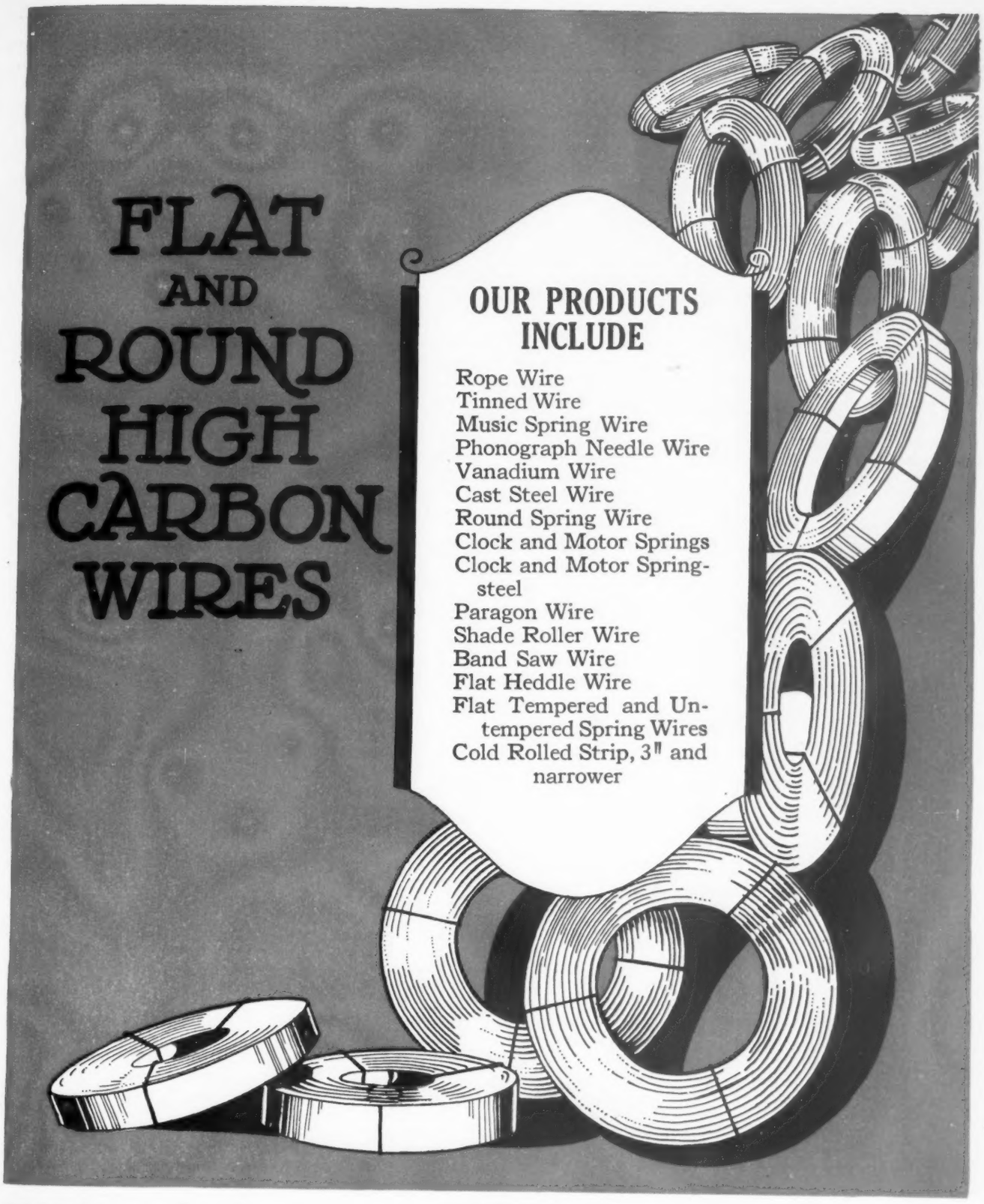
On jobs of considerable length, this attachment is a real time saver. One operation of the roller mechanism feeds the required length of stock, thus eliminating the multiple feeding operations necessary with the ordinary equipment. The end of each new bar is positioned first to permit trimming to remove the waste, allowing a suitable amount for chucking at the last end. A swing stop determines the position for trimming, this stop functioning only once on each bar, its operation being controlled by a ratchet wheel operated by a pawl which is actuated by the movement of the cut-off slide. The number of ratchet teeth is a multiple of the number of pieces available in each 10 foot bar. For example, there are 44 teeth when 11 pieces are available, in which case four operating dogs are necessary. These dogs, which are mounted on the side of the ratchet wheel, cause the swing stop to function at the proper time.

Upon completion of the trimming



Savings in material and in time result from the use of this roller feed and timing mechanism on screw machines making long parts

FLAT AND ROUND HIGH CARBON WIRES



OUR PRODUCTS INCLUDE

Rope Wire
Tinned Wire
Music Spring Wire
Phonograph Needle Wire
Vanadium Wire
Cast Steel Wire
Round Spring Wire
Clock and Motor Springs
Clock and Motor Spring-steel
Paragon Wire
Shade Roller Wire
Band Saw Wire
Flat Heddle Wire
Flat Tempered and Untempered Spring Wires
Cold Rolled Strip, 3" and narrower

Washburn Wire Co., Inc.

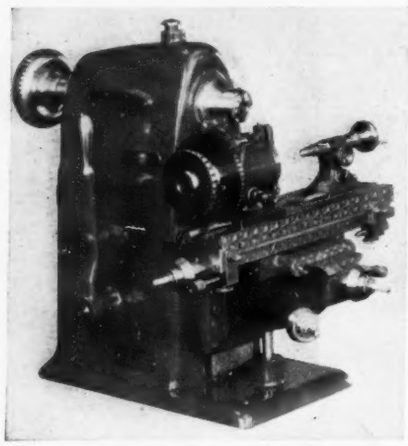
118th St. and Harlem River, New York, N. Y.

operation, the bar is fed against a stop which gages the correct length of each piece after each cut off operation. On account of the rapid rate at which an automatic machine equipped with this roller feed uses up bars when cutting off long pieces, the use of an automatic rod magazine for restocking the machine is recommended.

◆

Bench Milling Machine Has Compact Drive Unit

Hardinge Bros. Inc., 4147 Ravenswood avenue Chicago, has brought out a precision bench milling machine of the motor-driven type. This machine,



This bench-type milling machine is built for precision work

which is shown in the accompanying illustration, is particularly useful in toolrooms and in experimental shops where a considerable precision milling on work of small or of medium size is done.

The headstock is fully enclosed and is equipped with vee-belt drive. A six speed transmission is provided, high and low speeds being controlled by a clutch and additional speeds being obtained by shifting one belt. The driving unit is mounted under the bench and does away with all overhead shafts and belts. Provision can be made for the use of left-hand cutters, by applying a reversing type of switch to a standard reversible motor. Collets are interchangeable between cutter head and dividing head of the milling machine, and also are interchangeable between this milling machine and standard bench lathes built by the same company.

Among the principal specifications of this bench milling machine are: Working surface of table, 12 x 3⅛ inches; longitudinal travel of table, 5½ inches; transverse travel of table, 4 inches; vertical travel from center of spindle 6½ inches; range of speeds, 240 to 1725 revolutions per minute; and net weight, approximately 105 pounds.

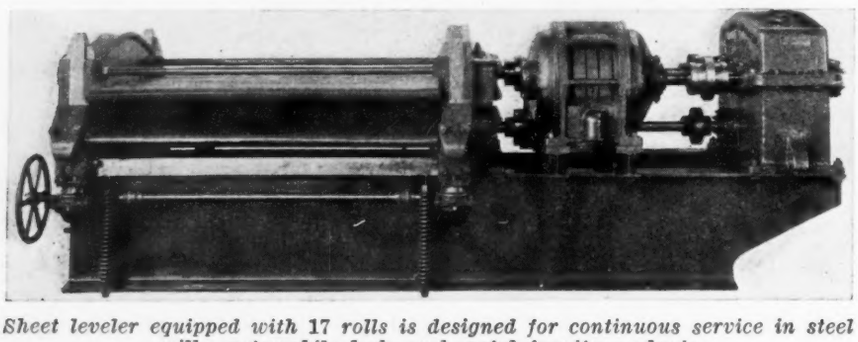
◆

Roll Leveler Yields Sheets Without Chatter Marks

Aetna-Standard Engineering Co., Youngstown, O., has brought out a roller leveler for sheets. This machine, shown in the accompanying illustration, has been designed particularly to give long, uninterrupted service to the steel, automobile and metal furniture industries which demand leveled sheets free from chatter marks.

This unit is of the 17-roll type, having all roll-drive gears mounted direct on the rolls and carried in solid cast steel roll housings which are oil tight. The top rolls are driven from the gear box by a single spindle which incorporates a standard flexible coupling. A shaft from this gear box drives the bottom rolls by direct connection. Tapered roller bearings are used throughout the machine, these being mounted so as to be grease tight and to allow maximum adjustment.

All roll-gears and pinions have accurately cut helical teeth and are of case-hardened steel. The screwdown mechanism for the top roll housing has worms and worm wheels enclosed in oil tight cases and, through shafts connecting them, each of which has two adjustable couplings, the rolls may be adjusted readily to give perfect parallel alignment. Either hardened and ground, or carbon steel rolls can be furnished with this unit.



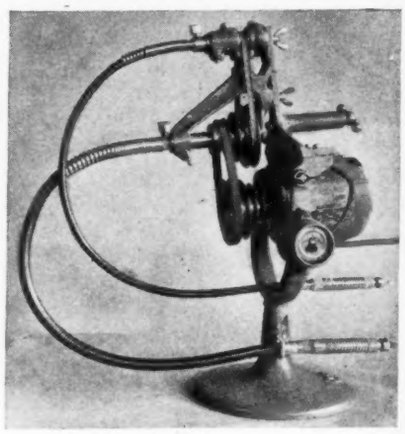
Sheet leveler equipped with 17 rolls is designed for continuous service in steel mills, automobile body and metal furniture plants

◆

Dual Flexible Shaft Unit Covers Broad Field

Keller Mechanical Engineering Corp., 62 Washington street, Brooklyn, N. Y., has introduced the new two-shaft flexible shaft machine shown in the accompanying illustration. This machine is useful on die work, tool work, etc., ranging from ordinary operations to exceedingly delicate work involving the use of small burrs and grinding stones.

The first shaft is for driving tools with 1/16 to ¼-inch shanks, and gives



Dual flexible shaft machine performs both ordinary and unusual work

four speeds ranging from 875 to 3500 revolutions per minute. The second shaft, which is the upper and lighter one, is for high speed work. It gives speeds ranging from 5250 to 10,500 revolutions per minute. Small formed abrasive stones for finishing and polishing dies sometimes are only ⅛-inch in diameter and therefore requiring high velocity to give them the necessary surface speed. The light shaft assembly also can be attached to other machines with four speed pulleys built by the Keller company, thereby doubling its usefulness. It only is necessary to substitute for the ordinary overarm one carrying a small ball bearing mounted pulley. Drive is by vee-belt running in the largest jackshaft pulley.

On account of the delicate nature of

the work performed by this machine, a more than ordinarily light and flexible shaft is used. To eliminate undue strain on this shaft, slots are milled on the motor bracket so that the whole unit may be moved until the balance point for all positions is found. To accommodate this shaft and the small grinding stones used with it, a light ball bearing hand piece has been developed. It has an outside diameter of ¾-inch, which allows the tool to be held in the fingers when doing fine work. Felt washers seal the ball bearings.

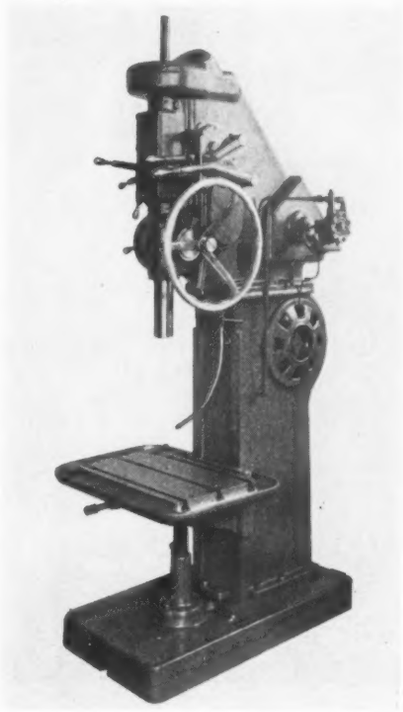
While carrying on work with the small shaft the larger shaft can be left on the machine so that the workman can easily change from one to the other with no loss in time. The small shaft may also be used on the jackshaft pulley, allowing small burrs and rasps to be driven at the slowest speed of the machine. Another innovation is a 10-foot shaft and sheath ½-inch diameter, so designed that it will run without chattering or vibration, thereby eliminating any loss of power in driving the tools. The new handpiece also is used on this and by means of interchangeable spring collets, burrs or grinding stones may be used with shaft diameters varying from 1/16 to 3/16-inch.

◆

Machine Allows High Speed on Drilling and Tapping

Barnes Drill Co., 814-830 Chestnut street, Rockford, Ill., announces a new drilling and tapping machine of 20-inch swing which has 1¼-inch drilling capacity in S.A.E. 1035 steel. This machine, which is fully equipped with tapered roller and radial ball bearings, is shown in the accompanying illustration. It provides six quick change speeds, and six quick change geared feeds, which insure efficient operation.

This machine has a substantial box frame, mounted on a pedestal base. The table slides on ways at the front of this frame, being raised and lowered by a heavy screw in a support on the base. The head contains the entire drive and feed mechanism, control levers being mounted on the outside of this case in positions most convenient for operation. Spur gears are used in the feed works, thus eliminating worms and worm gears. All feeds may be engaged and disengaged when the spindle is running idle. These gears are of heat-treated nickel steel, and are fully enclosed. A standard multiple disk clutch is used for drilling operations, and for tapping a reversing multiple



Geared head drilling and tapping machine allows high cutting speeds

disk clutch and gears are added to the drive shaft—this extra mechanism providing automatic trip and reverse. The spindle and sleeve are fully enclosed throughout the distance between crown-gear housing and sleeve bearing, thus excluding chips and dust, and permitting self-oiling of spindle and sleeve.

The motor can be either of flanged type, built into the columns, or standard foot-type attached to the rear of the columns. In either case the motor is connected to the driveshaft by vee-belts or silent chain. A 3-horsepower motor running at 1200 revolutions per minute is recommended. The machines can be supplied with a pulley for belt drive when desired.

The machine stands 95 inches high at the top of the spindle, the floor area is 31 x 50 inches and the weight, including 3-horsepower motor and starter is about 1840 pounds.

◆

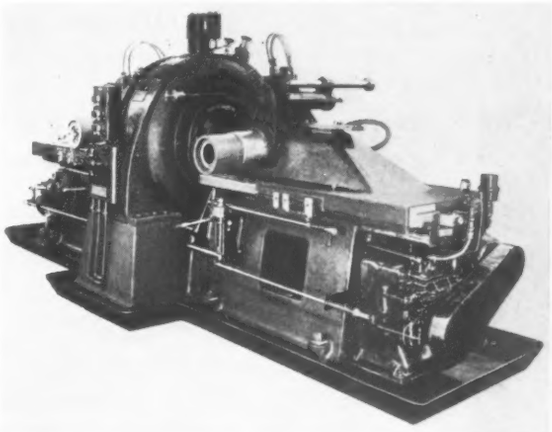
Hydraulically Fed Machine Bores Casing Couplings

William K. Stamets, Jenkins Arcade building, Pittsburgh, has put on the market a double-end boring mafeatures. This machine is shown in the illustration below.

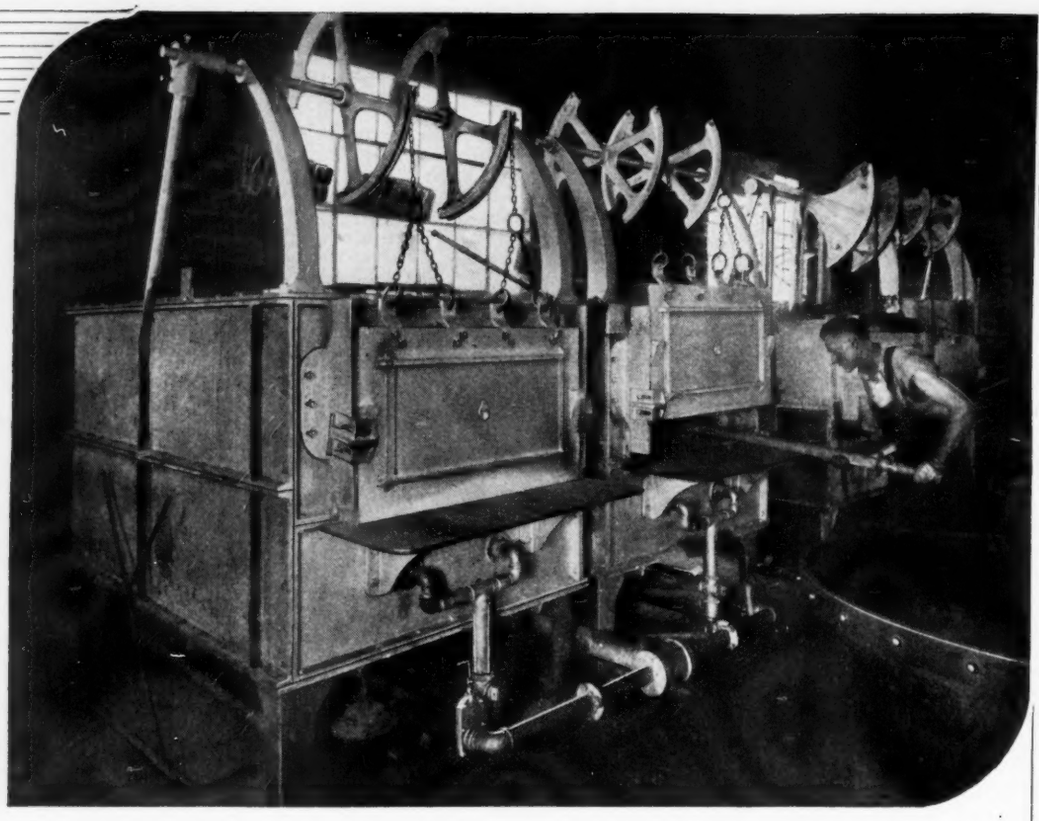
The central feature is a chuck housing mounted in the center of a substantial bed between two boring carriages. Each carriage is actuated by separate hydraulic feed system, each one having its own gear pump. These hydraulic feed mechanisms provide automatic rapid traverse and two rates of feed, each carriage being provided with a delayed reverse to allow dwell for facing the work at the end of the stroke. The carriages run on hardened and ground plates.

The spindle is 21 inches in diameter and is mounted on two tapered roller bearings which are said to be the largest ever used in any machine tool. It is equipped with a power chuck which can be opened and closed while the spindle is running. This chuck is actuated by pushbuttons, jaw pressure is adjustable, and positive means are provided for opening. All moving parts in the chuck housing run in a bath of oil.

Spindle drive is by a 30-horsepower adjustable-speed motor, through helical gears. Full electrical control provides automatic speed changes, and an interlock stops the feed in case the spindle drive fails. Air-operated loading and unloading arms automatically spring into position when the carriages move back.



Double-end boring machine with hydraulic feed mechanism shows fast performance on taper boring, recessing, facing and chamfering high carbon steel casing couplings



AND HERE IS A REAL PERFORMANCE RECORD

IN an Ohio plant two heat-treating furnaces produce one-third more with the same fuel consumption—

The uniformity of the heat treatment is improved to a marked degree—

There is decidedly less scale—the quality of work far better—

And when it comes to production, the two furnaces equipped with "Carbofrax" Hearths do practically as much work as four having hearths of ordinary fireclay.

"Carbofrax", the Carborundum Brand Silicon Carbide Refractory—makes such performance records possible because of its high heat conductivity—its refractoriness—its freedom from softening or fluxing.

"CARBOFRAX" HEARTHS

REG. U. S. PAT. OFF.

MADE FROM CARBORUNDUM BRAND SILICON CARBIDE

THE CARBORUNDUM COMPANY, PERTH AMBOY, N. J.

REG. U. S. PAT. OFF.

CHRISTY FIREBRICK COMPANY, ST. LOUIS, KANSAS CITY, NEW ORLEANS, HOUSTON
PACIFIC ABRASIVE SUPPLY CO., LOS ANGELES, SAN FRANCISCO, SEATTLE
WILLIAMS AND WILSON, LTD., MONTREAL-TORONTO, CANADA
HARRISON & COMPANY, SALT LAKE CITY, UTAH
DENVER FIRECLAY CO., EL PASO, TEXAS

(CARBORUNDUM AND CARBOFRAX ARE REGISTERED TRADE MARKS OF THE CARBORUNDUM COMPANY)

Canada's Iron, Steel Output Suffers in 1929 Comparison

(*Concluded from Page 29*)

half the 82,632 tons produced in December of 1929.

Compared with the output of November, December figures show an increase in output of basic iron, from 15,591 tons to 20,116, but foundry iron dropped from 30,769 tons to 17,551. For 1930, production of pig iron at 746,448 tons declined 30.8 per cent from the 1,080,160 tons made in 1929.

Output of steel ingots and direct steel castings during December was 56,101 tons, a drop of 22 per cent from 71,740 tons produced in November, and about two-thirds of the 82,415 tons of December, 1929. For 1930, production of steel ingots and castings amounted to 1,011,743 tons against 1,378,024 tons in 1929, a record year. This was a decrease of 26.6 per cent and included 957,430 tons of ingots, and 54,313 tons of direct steel castings, 95 per cent of which was for sale.

Enameled Ware Shipments Fail to Improve

Sheet metal ware shipments in November were 263,365 dozens, against 326,912 dozens in October, according to report of makers comprising 80 per cent of the industry to the bureau of the census in the following.

	In Dozens		
1929	Total	White	Grey and Colored
Nov.	305,714	115,117	190,597
(11 mos.)	4,112,579	1,757,607	2,354,972
Dec.	391,523	103,404	288,119
Total (year)	4,504,102	1,861,011	2,653,091
1930			
Jan.	332,146	110,758	221,388
Feb.	331,915	120,523	211,392
March	341,372	124,856	216,516
April	318,431	124,562	193,869
May	290,617	114,709	175,908
June	247,861	90,151	157,710
July	213,420	70,718	142,702
August	309,645	89,259	220,386
Sept.	297,622	97,262	200,360
Oct.	329,337	107,553	221,784
Nov.	263,365	79,719	183,646
(11 Mos.)	3,275,731	1,130,070	2,145,661

December Coke Production Shows Further Decline

A further contraction characterized the coke industry in December, according to the bureau of the mines. Output of by-product coke was the smallest of any month in 1930, being 3,077,290 net tons, compared with 3,137,110 tons in November. Beehive production is estimated at 171,100 net tons in December. Comparisons with 1929 follow:

	(In net tons)		
1929	By-product coke	Beehive coke	Total coke
Dec.	4,180,601	344,900	4,525,501
(Year)	53,411,826	6,472,019	59,883,845
1930			
Dec.	3,077,290	171,100	3,248,390
(Year)*	45,514,508	2,795,800	48,310,308

*Preliminary.

River Traffic at Pittsburgh Lightest in December

River shipments of iron and steel products in the Pittsburgh district during 1930 were approximately the same as during 1929, according to figures by the United States Engineers of the district. December shipments were the lightest of the year and showed decreases from the corresponding month of 1929 on all rivers except the Allegheny. Monthly table follows:

	Allegheny	Monongahela	Ohio
1929			
Dec.	400	60,957	77,885
(Year)	2,507	1,203,727	1,212,912
1930			
Jan.	100	58,784	64,736
Feb.	210	80,327	74,385
March	100	111,702	109,911
April	1,000	70,229	66,482
May	.....	117,942	128,502
June	700	137,603	144,099
July	1,125	132,161	147,558
August	2,600	96,498	107,948
Sept.	5,100	106,079	109,129
Oct.	11,490	105,451	138,109
Nov.	17,850	75,202	95,644
Dec.	3,800	46,972	50,403
(Year)	44,075	1,133,950	1,236,906

Mechanical Stoker Sales Equal 1930 Low at Year End

Sales of mechanical stokers were 53 in December and continued a four-month decline. Year's total sales were 31 per cent below 1929, according to the bureau of census report:

1929	Stokers sold	Fire tube boilers	Water tube boilers
December	79	30	49
(Year)	1,716	706	1,010
1930			
January	53	24	29
February	73	26	47
March	89	45	44
April	108	46	62
May	96	41	55
June	151	70	81
July	150	83	67
August	115	61	54
October	92	46	46
November	71	41	30
December	53	35	18
(Year)	1,179	589	590

Malleable Castings Gain in December Production

Production of malleable castings in December was the highest since July, states the department of commerce. Shipments also improved over November, as the following comparison shows:

1929	Production, tons	Shipments, tons	Orders booked tons	Per cent cap. operated
Dec.	46,029	47,689	43,475	47.3
(Year)	824,856	818,150	785,878	71.3
1930				
Jan.	61,381	57,820	58,009	61.6
Feb.	65,942	59,971	61,606	67.4
March	63,464	65,164	60,915	64.6
April	61,984	60,875	54,625	63.1
May	53,502	55,656	47,022	53.8
June	39,347	43,937	33,865	40.3
July	30,911	32,656	30,068	31.0
Aug.	25,614	31,845	25,409	26.2
Sept.	26,528	29,223	26,251	27.2
Oct.	28,785	29,206	24,171	29.0
Nov.*	27,114	25,974	27,451	27.8
Dec.**	30,371	27,353	26,429	31.1
(Year)	514,943	519,680	475,821	43.6

*Revised. **Preliminary.

Galvanized Ware Suffers November Output Slump

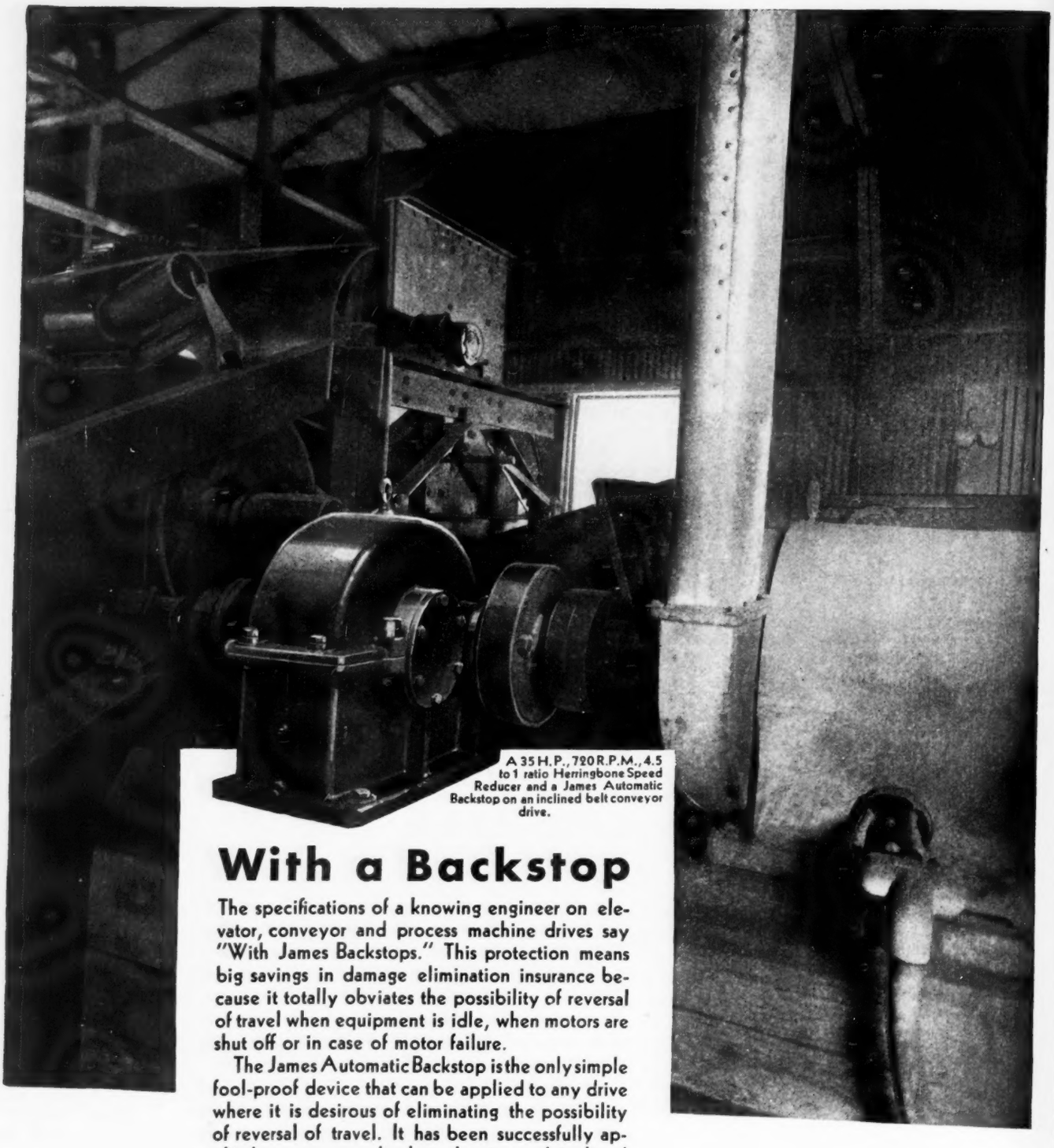
November production of galvanized pails and tubs at 60,798 dozens fell to half the October output. Production of other ware was off comparably, as were shipments in both classes, according to the department of commerce report:

	(In dozens)		
	Pails and Tubs		Other Ware
1929	Production	Shipments	Production
Nov.	102,400	90,684	32,951
(11 mos.)	1,511,849	1,539,539	508,098
Dec.	112,962	107,733	33,114
(Year)	1,624,811	1,647,272	541,212
1930			
Jan.	145,588	154,731	33,982
Feb.	119,739	129,853	35,121
March	135,178	135,602	37,963
April	131,015	120,552	44,058
May	113,645	107,496	44,405
June	89,982	82,956	40,646
July	91,879	104,096	42,056
Aug.	103,050	103,354	46,730
Sept.	103,177	116,875	38,218
Oct.	130,906	115,185	40,084
Nov.	60,798	68,330	16,061
(11 mos.)	1,224,957	1,239,030	419,324

Electric Trucks Show Gain

December shipments of electrical trucks and tractors, at 51, increased over November and made the 1930 total 1191, against 2019 in 1929, as the following comparison by the department of commerce shows:

		Shipment	
1929	Total	Domestic	Export
December	151	124	27
(Year)	2,019	1,859	100
1930			
January	140	123	17
February	113	106	7
March	123	109	14
April	106	101	5
May	144	125	19
June	95	63	32
July	108	99	9
August	92	81	11
September	81	75	6
October	93	90	3
November	45	36	9
December	51	42	9
Year)	1,191	1,050	141



A 35 H.P., 720 R.P.M., 4.5 to 1 ratio Herringbone Speed Reducer and a James Automatic Backstop on an inclined belt conveyor drive.

With a Backstop

The specifications of a knowing engineer on elevator, conveyor and process machine drives say "With James Backstops." This protection means big savings in damage elimination insurance because it totally obviates the possibility of reversal of travel when equipment is idle, when motors are shut off or in case of motor failure.

The James Automatic Backstop is the only simple fool-proof device that can be applied to any drive where it is desirous of eliminating the possibility of reversal of travel. It has been successfully applied on numerous bucket elevator and inclined conveyor drives in every industry.

Unlike other devices for accomplishing the same purpose, the James Backstop has no brake pins or other wearing parts and requires no adjustment or care, being immediately ready for operation as soon as power is applied in the proper direction.

The James Backstop is an excellent safety device for use with James Speed Reducers on drives of every type. It is made to operate at speeds from 600 to 1800 R.P.M. and from 1 to 300 H.P. Write for details and descriptive literature.

D. O. JAMES MANUFACTURING CO.
1120 West Monroe Street, Chicago
Offices in Principal Cities

Come to Headquarters!

Make us your headquarters for cut gears and speed reducers. Our unequaled facilities and enormous stocks of finished speed reducer parts allow for quick shipment of many sizes. Only James makes all types of speed reducing units—the correct machine for every drive.

Mirrors of Motordom

(*Concluded from Page* 33)

making a reported 240 units a day.

Part of the Dodge motor production equipment is being moved from the Joseph Campau street plant to the Jefferson avenue works. Some DeSoto equipment is being transferred to the Plymouth division. Operations of its Dayton, O., subsidiary are being partially transferred to the Highland Park division.

Auto Schedules Mild; New 12 Looms

Reo is operating slightly better since the shows, being at 45 to 50 units a day, 5 days. Recent difficulty with hinges on the new Royale model has been cleared up. Reo, it will be recalled, is practically the only maker to bring out a higher-priced model.

Lincoln, at 5 days, has retrenched from 40 units daily to 25 to 30.

Packard, at 5 days, is unchanged, assembling 75 to 80 cars daily.

Oldsmobile, on a 6-day week, is receiving impulse from its new models, and now is at 175 units daily with some prospects of increasing to 200. This division of General Motors is pressing for material.

Auburn, also on a 6-day week and turning out about 115 units daily, is expected out shortly with a 12-cylinder job. It is claiming that orders thus far in 1931 exceed those for 1930, and that its shipping department is forced to work nights.

Studebaker releases for steel have improved, and at 5 days a week is making 300 units a day. Its Pierce Arrow subsidiary is producing 75 cars weekly.

Buick's schedule varies from 4 to 5 days a week, with an unchanged average daily output of 500 cars.

Oakland-Pontiac, under a new general manager, is steady at 400 units daily, 5 days a week.

Cadillac-LaSalle makes 105 to 110 cars a day, five days a week. Of this, LaSalle makes 40, Cadillac 8, 35, and Cadillac 12, 30 units. The Cadillac 16 is slightly ahead on motors, which are temporarily out of production, but assembles three or four 16's a day. The month's goal of 1300 automobiles for all models will be safely passed.

The new DeVaux is aiming now at March 1 as the date when the new car will be out. Plans call for employment of at least 500 men and output of 200 cars daily.

Willys-Overland made some 8000 units in January, contrasted with a 15,000-unit month outlined late in December.

◆

An analysis of the foregoing production schedules does not afford much comfort.

January production of passenger cars and trucks in the United States will probably approximate 190,000 to 200,000 units, compared with the department of commerce actual total of 155,601 units for December, 129,437 for November, 150,044 for October and 216,877 for September.

January production thus is indicated as the best since September. The big improvement over December results not so much from an actual betterment in the daily rate but the fact that because of the year-end holidays December had so few working days.

Not since production figures first were compiled by the government, beginning in 1921, has February output of passenger cars and trucks failed to exceed that of the preceding January, but it will be a close shave this year.

February, as usual, has two fewer working days than January. Steel releases for February shipment revealed a negligible improvement, on the whole. Sentiment is moderately cheerful, and the consensus of opinion is that improvement will be registered slowly throughout the year, but there is little tangible support for a markedly improved February.

◆

Great Lakes Steel Corp., subsidiary of the National Steel Corp., has three of its six open-hearth steel furnaces on and is making bottom on a fourth. It is possible that No. 1 furnace, on since late fall, will be taken off shortly, but this depends upon the run of orders. Increased open-hearth operations are largely to replenish a depleted bank of ingots.

Since the acquisition of Michigan Steel Corp. by the parent National Steel Corp., Great Lakes has been supplying practically all of its sheet bar requirements. Thus far the Great Lakes open hearths are averaging 9000 tons of ingots per month. The new bar mill will be ready in March or April. Great Lakes believes it set a record for putting its hot-rolled strip mill in operation.

Hollow Steel Wheels Being Produced by Budd

Budd Wheel, which is working on all-steel bodies for Chrysler and Dodge, has designed chrome-nickel corrosion-resistant steel veneer spokes for Ford wheels. These are in the nature of accessories, and may be applied by owners.

Budd will also manufacture corrosion-resistant steel veneer spokes for wheels of other automobiles, these spokes to be in the form of hollow tube, threaded at each end and fitted only at the plant.

Budd also has a hollow steel artillery-type spoke wheel finished to simulate wood. The spoke is formed of two metal stampings which are hollow half tubes, and welded. Pierce Arrow, for one maker, will use this type of wheel with a large chromium plated hub cap.

Murray Body is understood to be doing considerable experimental work for Ford, which may be in reference to the proposed Ford eight. Murray's releases from Reo, Hudson and Hupp keep it on a steady schedule.

Briggs is also on some Ford body work which has entailed great secrecy.

◆

With the simplification of the mesh gear transmission box, which General Motors has already stated will permit the use of this system on its lower priced lines, speculation is current on when Chevrolet and Pontiac, the two survivors, will turn to syncro-mesh.

Probably Pontiac will go to this transmission first; the cost may yet prohibit its use on Chevrolet.

There seems, however, to be a unanimity of opinion that when 1932 models are out, General Motors will have syncro-mesh on all its models.

An effort on foot to introduce new models in the closing two months of the year would have many beneficial effects. Steel releases of auto makers would assume a more even flow, with but one interruption instead of several over a year.

Much uncertainty in the consuming public's mind as to continually impending model innovations would be eliminated.

Though the effort simultaneously to introduce new models may be balked by some manufacturers, Buick has already announced it will withhold its 1932 model until January, as predicted earlier in these columns.

Reo, Buick, Studebaker, Chrysler, Cadillac and Chevrolet, to mention but a few, came out with new models during 1930, leaving comparatively little new in models for the 1931 shows.

The automobile world may continue to make changes on models through the year without resort to completely new designed units. Engineering features, such as free wheeling and syncro-mesh transmissions, may logically be expected through the year.

Obituaries

(*Concluded from Page* 31)

ure Mfg. Co., Bristol, Conn., for more than 25 years, died recently.

□ □ □

Walter P. Hatch, 78, formerly president of Chicago Drop Forge & Foundry Co., Chicago, died Jan. 20 at East Orange, N. J.

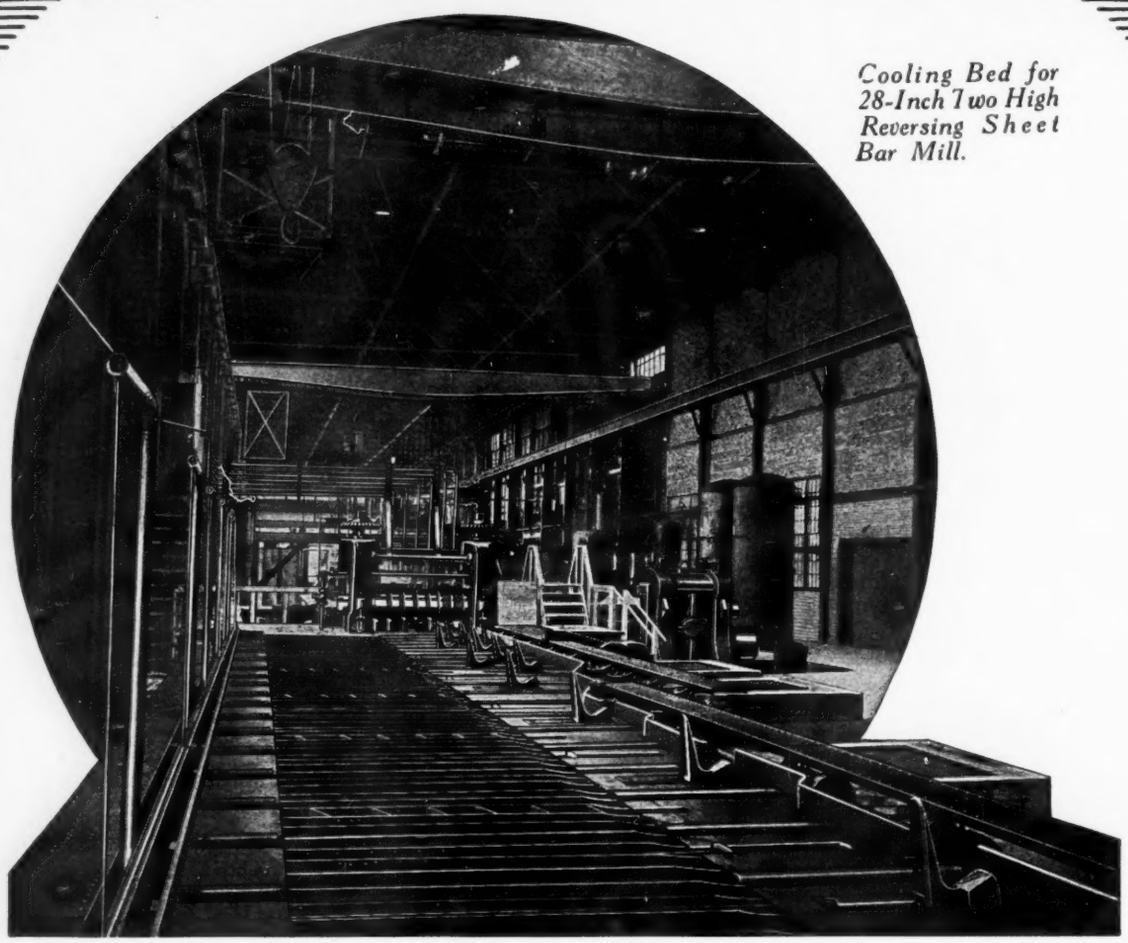
□ □ □

Franz Wollaeger, 84, treasurer of John Pritzlaff Hardware Co., Milwaukee, died Jan. 18.

□ □ □

Jasper Bannette, 83, inventor of agricultural machinery and sewing machine equipment, died at Tiffin, O., Jan. 24.

"NATIONAL"



Cooling Bed for 28-Inch Two High Reversing Sheet Bar Mill.

Rolling Mill Equipment

Rolling mills prefer "*National*" equipment because it conforms strictly to the most up-to-date requirements, and gives a service that can only be obtained from a product of superior quality.

We specialize everything in Rolling Mill Equipment—

Baird Water Cooled Standings; Blooming Mills; Merchant Bar Mills; Sheet and Tin Mills; Chilled and Sand Rolls; Leveling Machines; Strecher Levelers; Shears; Roll Lathes; Also Air Furnace Castings.

May we have your specifications?

The National Roll & Foundry Co.

Avonmore, Pa., U.S.A.

MANUFACTURERS OF
COMPLETE ROLLING MILL EQUIPMENT
HEAVY AIR FURNACE CASTINGS AND "BAIRD" WATER COOLED STANDINGS

January Iron Rate Up 3 Per Cent

Eight-Month Decline Checked; Net Gain of 7 in Active Stacks—Steel Operations Now 48 Per Cent—Tone Better in Most Steel Markets

JANUARY, making the first statistical report for 1931, has turned in an increase of 2.8 per cent in the daily rate of pig iron production, thereby arresting the decline which has continued unchecked since May, 1930.

At 55,255 tons daily, January compares with 53,732 tons in December and 91,573 tons in January, 1930. The month's total was 1,712,919 tons, against 1,665,715 tons in December and 2,838,751 tons last January. Relating production to capacity, January was a 39.2 per cent month.

As of Jan. 31 the number of blast furnaces active was 102, a net gain of 7 over Dec. 31. Of these, 6 were at steelworks, insuring not only that the January ingot statistics available next week will disclose a gain but also forecasting another increase in the iron rate for this month.

This improvement is continuing into February, although at a slower rate, and for the sixth consecutive week steelmaking operations have expanded. The industry now is at 48 per cent, compared with 47 last week and 46-47 two weeks ago. Youngstown is steady at 49 per cent, Pittsburgh at 45, Cleveland at 50, Buffalo at 54; Birmingham is off 2 points to 58; Chicago is fractionally stronger at 45-47; eastern Pennsylvania is up 1 point to 47.

In contrast with last week, a more constructive strain is running through the market news. It is not distinct but it does reflect slightly greater consumer interest. For one thing, January in retrospect reveals moderate betterment in orders as well as production in most lines, and the picture as a whole appears brighter than its weekly segments.

This situation has its counterpart in steel prices which, although not subject to noteworthy test, appear somewhat firmer in practically all districts save Detroit, where buyers press for concessions. Southern pig iron and scrap in many districts, however, are softer, and this week STEEL's market composite is off 4 cents, to $31.69.

Structural steel awards enter February on about the same plane as late January, this week's orders totaling 16,919 tons, compared with 20,348 tons last week and 48,082 tons a year ago. Outstanding is the placing of 3300 tons for the Ford plant at Seattle to the Bethlehem Steel Co. Fresh inquiry is larger than awards, including 15,000 to 20,000 tons for a parcel post building at New York.

Freight car orders in January made the poorest showing in history, when only 100 were actually entered. Orders in December totaled 2729 units, and last January 5072. The Nickel Plate has placed 27,400 tons of rails with the Carnegie, Bethlehem, Inland and Illinois Steel Cos. The Grand Trunk has awarded 15,000 tons of rails to the Illinois company. New York Central has bought 25,000 to 30,000 tons of tie plates, 30,000 to 40,000 kegs of spikes and 5000 kegs of bolts and nuts. Pennsylvania has ordered 4000 tons of tie plates.

Chicago mills have booked the heaviest specifications in bars in several months, and the 1.75c, Chicago, base, is firmer locally. Plates suffer from the slack railroad equipment situation. Of the 15,200 tons of steel required for a vehicular tunnel at Boston, 12,000 tons is plates. Storage tank work pending at Chicago requires 8000 tons of plates.

Specifications for sheets are moderately broader at Pittsburgh, Youngstown and Chicago, with non-automotive needs predominating in spite of improved releases this week at Detroit. Tin plate is moving much better.

Wire is featured by new bases on annealed fence and galvanized wire, the effect being a $6 ton rise to jobbers, who have covered some distance ahead. Eight thousand tons of steel pipe for a Mexico-Texas pipe line will be fabricated by the A. O. Smith Corp.

January shipments of pig iron in the lake district were 35 to 50 per cent higher than in December. Bookings, however, are light and the market is inactive. Neither coke nor scrap as yet are stirred by the slight improvement in the finished steel markets.

Composite Market Averages

Based on Pig Iron, Billets, Slabs, Sheet Bars, Wire Rods, Steel Bars, Plates, Shapes, Black, Galvanized and Blue Annealed Sheets, Tin Plate, Wire Nails and Black Pipe.

This week (Feb. 4, 1931)	**$31.69**
Last week (Jan. 28, 1931)	**31.73**
One month ago (January, 1931)	**31.71**
Three months ago (November, 1930)	**31.92**
One year ago (February, 1930)	**35.24**
Ten years ago (February, 1921)	**48.81**

Comparative Prices of Iron, Steel and Coke

Representative Market Figures for This Week, Last Month, Three Months and One Year Ago

	Feb. 4, 1931	Jan. 1931	Nov. 1930	Feb. 1930
PIG IRON				
Bessemer, del. Pittsburgh	$18.76	18.76	18.76	20.76
Basic, valley	17.00	17.00	17.00	18.50
Basic, eastern del. eastern Pa.	17.50	17.25	17.50	19.00
No. 2 foundry, del. Pittsburgh	18.26	18.26	18.26	19.76
No. 2 foundry, Chicago	17.50	17.50	17.50	20.00
*Southern No. 2, Birmingham	13.00	14.00	14.00	15.00
**No. 2X, Virginia furnace	18.25	18.25	18.25	18.25
**No. 2X, Eastern del., Phila.	18.26	18.26	19.26	21.26
Malleable, valley	17.50	17.50	17.50	19.00
Malleable, Chicago	17.50	17.50	17.50	20.00
Lake Superior, charcoal, del. Chi.	27.04	27.04	27.04	27.04
Gray forge, del. Pittsburgh	17.63	17.63	17.63	19.13
Ferromanganese, del. Pittsburgh	89.79	89.79	103.79	104.04

*1.75 to 2.25 silicon. For local delivery. Northern shipments based on $12 to $13, Birmingham. **2.25 to 2.75 silicon.

COKE				
Connellsville furnace, ovens	2.50	2.50	2.55	2.60
Connellsville foundry, ovens	3.25	3.30	3.50	3.50
SEMIFINISHED MATERIAL				
Sheet bars, open-hearth, Youngs.	30.00	30.00	31.00	33.00
Sheet bars, open-hearth, Pitts.	30.00	30.00	31.00	33.00
Billets, open-hearth, Pittsburgh	30.00	30.00	31.00	33.00
Wire rods, Pittsburgh	35.00	35.00	36.00	40.00

	Feb. 4, 1931	Jan. 1931	Nov. 1930	Feb. 1930
FINISHED MATERIAL				
Steel bars, Pittsburgh	1.65	1.65	1.60	1.85
Steel bars, Chicago	1.70	1.70	1.70	1.95
Steel bars, Philadelphia	1.94	1.94	1.89	2.17
Iron bars, Chicago	1.75	1.70	1.70	1.95
Shapes, Pittsburgh	1.60	1.60	1.60	1.85
Shapes, Philadelphia	1.81	1.81	1.71	1.86
Shapes, Chicago	1.70	1.70	1.70	1.95
Tank plates, Pittsburgh	1.65	1.65	1.60	1.85
Tank plates, Philadelphia	1.80½	1.81½	1.81½	2.00
Tank plates, Chicago	1.70	1.70	1.70	1.95
Sheets, blue anl., No. 13, Pitts.	2.05	2.05	2.05	2.35
Sheets, black, No. 24, Pitts.	2.35	2.35	2.35	2.65
Sheets, gal., No. 24, Pittsburgh	2.90	2.90	2.95	3.30
Sheets, black, No. 24, Chicago	2.50	2.50	2.55	2.80
Sheets, blue anl., No. 13, Chicago	2.20	2.20	2.30	2.50
Sheets, galvanized, No. 24, Chi.	3.05	3.05	3.15	3.45
Plain wire, Pittsburgh	2.20	2.20	2.30	2.40
Wire nails, Pittsburgh	1.90	1.90	1.90	2.30
Tin plate, per base box, Pitts.	5.00	5.00	5.00	5.25
SCRAP				
Heavy melting steel, Pitts.	12.75	13.00	13.10	16.90
Heavy melting steel, eastern Pa.	10.50	10.50	11.50	14.50
Heavy melting steel, Chicago	10.00	10.00	10.20	13.25
No. 1 wrought, eastern Pa.	13.00	13.25	13.50	15.25
No. 1 wrought, Chicago	9.50	9.50	10.00	13.70
Rails for rolling, Chicago	12.50	13.00	13.10	14.80

Sheets

Slight Gains Noted in Some Markets—Automotive Industry Gradually Increasing Orders

SHEET PRICES, PAGE 87

Pittsburgh — Sheet business is holding to its recent quiet rate except in some directions where slight gains are noted in specifications. Demand from the automotive industry and farm implement builders gradually is increasing, although still at a low rate. The upturn in January business compared with December was small. Operating schedules are off a few points from the level of the preceding several weeks, at about 38 per cent. Practically all orders are limited in size and call for prompt shipment. Prices continue steady although current orders are not providing a strong test of the market. Quotations generally are 2.35c, Pittsburgh, for black sheets; 2.90c to 3.00c for galvanized; 2.05c for No. 13 blue annealed; 1.90c for Nos. 9 and 10 blue annealed, and 3.30c for autobody.

New York—Sheet demand shows further slight gain. Galvanized are easier, with 2.90c, Pittsburgh, dominating both jobber and general business. Lack of an increase in sales discourage efforts in some quarters to place galvanized on a flat 3.00c basis. Other prices are steady. Mills are considering plans for a better identification of galvanized seconds.

Philadelphia—Business is spotty, some sellers reporting improvement. Galvanized sheets have settled to a flat price of 2.90c, Pittsburgh, to jobbers and the general trade. Other grades are unchanged.

Youngstown, O.—The expected influx of specifications for full-finished sheets actually has developed and mills now are apparently well situated for the remainder of this month. Other grades of sheets, however, are slower. About one-half of the new business came from automobile parts makers, the remainder being placed by manufacturers of mechanical refrigerators, cash registers and furniture. Prices continue to hold at 3.30c, Pittsburgh, for autobody, and 3.60c for furniture stock; 2.35c for common black; 1.90c to 2.05c for blue annealed, and 2.90c to 3.00c for galvanized. Consumers place more emphasis upon quick deliveries than on prices.

Cleveland—The Ford Motor Co. and a few others continue to specify fairly large amounts from Ohio mills. Fisher Body Co. here continues to make 13,000 to 16,000 units weekly. Stove and electric refrigerator manufacturers continue fairly active. Enameling stock is seasonally active and galvanized sheets for painted signs are in larger demand. In galvanized the 3.00c, Pittsburgh, price has practically disappeared, and 2.90c is the quotable market. Autobody sheets are 3.30c, and metal furniture, 3.60c, Pittsburgh.

Cincinnati—With exception of a slight dip one week orders for sheet mills in this district showed steady gains in January. Mills are confident the first quarter will bring decided improvement over the last quarter.

Chicago—Prices are untested by important buying. No. 24 galvanized is quoted at 3.00c, mills. Orders for quick shipment have improved in the last few days with the result that mills in this district have scheduled practically a full week's operations for the first time in more than 30 days. The ten hot mills in Milwaukee district are likely to remain down for the remainder of the month. Operations are 40 to 50 per cent. Jobbers are slightly more active.

St. Louis—The leading local producer here has reduced prices $2 a ton, delivered, St. Louis, now quoting: No. 24 black, 2.70½c; No. 10 blue annealed, 2.25½c; No. 13 blue annealed, 2.40½c and galvanized 3.25½c. Business has improved moderately, chiefly in blue annealed and black.

Current Finished Steel Prices

Prices in cents per pound unless otherwise stated

Steel Sheets

SHEET MILL BLACK, NO. 24

Pittsburgh base	2.35c
Philadelphia, delivered	2.64c
Gary, Indiana Harbor	2.45c
Chicago, delivered	2.50c
Birmingham, base	2.50c to 2.60c
St. Louis, del.	2.70½c

TIN MILL BLACK, NO. 28

Pittsburgh, base	2.65c to 2.75c
Gary, base	2.75c to 2.85c

GALVANIZED NO. 24

Pittsburgh, base	2.90c
Philadelphia, delivered	3.19c
Chicago, delivered	3.05c
Gary, Indiana Harbor	3.00c
Birmingham, base	3.05c to 3.15c
St. Louis, del.	3.25½c

BLUE ANNEALED SHEETS NO. 13

Pittsburgh, base	2.05c
Chicago, district mills	2.15c to 2.25c
Chicago, delivered	2.20c to 2.30c
St. Louis, delivered	2.40½c
Philadelphia, delivered	2.34c
Birmingham	2.20c to 2.25c

BLUE ANNEALED SHEETS NO. 9-10

Pittsburgh, base	1.90c
Chicago, district mills	2.00c to 2.10c
Chicago, delivered	2.05c to 2.15c
Philadelphia, delivered	2.19c
St. Louis, delivered	2.25½c
Birmingham	2.05c to 2.10c

AUTOMOBILE NO. 20

Pittsburgh, base	3.30c

FURNITURE NO. 24

Pittsburgh, patent leveled	3.60c

Tin and Terne Plate

Prices per 100 pound box Pittsburgh

Tin plate, coke base	5.00c

Gary, Ind., base 10 cents higher.

Long ternes, 24, assorted	3.55c
Long ternes, 24, unassorted	3.45c

Wire Products

(To Jobbers-Merchant Trade)

F.o.b. Pittsburgh, Cleveland base
(Per 100 pound keg)

Standard wire nails	$1.90 and 2.00
Cement coated nails	1.90 and 2.00
Galvanized nails	3.90 and 4.00

(Per pound)

Polished staples	2.35c and 2.45c
Galvanized staples	2.60c and 2.70c
Barbed wire, gal.	2.55c and 2.65c
Annealed fence wire	2.35c and 2.45c
Galvanized wire	2.80c and 2.90c

Woven wire fencing, retailers, Pittsburgh-Cleveland, net ton $65.

(To Manufacturing Trade)

Plain wire, 6-9 gage	2.20c to 2.30c
Spring wire	3.20c
Wire, delivered Detroit	2.50c
Nails, delivered Detroit	$2.35

Joliet, DeKalb, Waukegan, Ill., Anderson, Ind., Chicago, $1 over Pitts.-Cleve.; Duluth and Worcester, Mass., $2 higher; Fairfield, Ala., $3 higher.

Rivets

Struc. c.l., Pitts.-Cleve.	2.75c
Struc., c.l., Chicago	2.85c
**7/16-inch and smaller, Pitts.	70, 10 and 5 off
Chi., Cleve.	70 to 70, 10 and 5 off

**Some makers quoting 70 off with freight allowed on 300 pounds or more.

Steel Plates

Base, Pittsburgh	1.60c to 1.65c
Philadelphia, del.	1.80½c to 1.85½c
New York, delivered	1.98c
Boston, delivered	2.05c
Chicago, base	1.70c to 1.75c
Cleveland, delivered	1.78½c to 1.83½c
Lackawanna, N. Y., base	1.70c to 1.75c
Birmingham, base	1.75c to 1.80c
Coatesville, Pa., base	1.70c to 1.75c
Pacific Coast, c.i.f.	2.05c to 2.15c
St. Louis, del.	1.95½c

Structural Shapes

Base, Pittsburgh	1.60c to 1.65c
Philadelphia, del.	1.81c
New York, del.	1.905c
Boston, del.	1.985c to 2.035c
Chicago, base	1.70c to 1.75c
Cleveland, delivered	1.78½c to 1.83½c
Lackawanna, N. Y., base	1.75c to 1.80c
Birmingham, base	1.75c to 1.80c
Pacific Coast, c.i.f.	2.15c to 2.25c

Bars

SOFT STEEL

Pittsburgh, base	1.60c to 1.65c
Chicago, base	1.70c to 1.75c
Birmingham, base	1.75c to 1.80c
Lackawanna, N. Y., base	1.70c to 1.75c
Pacific Coasts, c.i.f.	2.25c
Cleveland, base	1.65c to 1.70c
Philadelphia, del.	1.94c
New York, del.	1.98c
Boston, del.	2.05c
Pittsburgh, cold finish	1.75c to 1.80c
Pittsburgh, forg. qual.	1.85c to 1.90c

RAIL STEEL

Chicago Heights	1.60c to 1.65c
Eastern mills	1.65c

IRON

Chicago, base	1.75c
New York, delivered	1.98c to 2.08c
Philadelphia, delivered	1.94c to 1.99c
Pittsburgh, refined	2.75c to 4.25c

REINFORCING

Pitts., billet cut lengths	1.90c to 2.00c
Stock lengths, mill	1.65c to 1.75c
Chi. billet	2.00c
Chi., rail steel	1.60c to 1.70c
Philadelphia, cut lengths	2.19c
Cleveland, cut lengths	1.95c to 2.05c

Cold-Finished Steel Bars and Shafting

Base, Pittsburgh, Chicago, Buffalo and Cleveland	2.10c
Shafting, turned and ground, mill	2.45c to 2.90c

Corrosion, Heat Resist. Alloys

Base, Pittsburgh

18 per cent chrome, 8 per cent nickel Sheets, 35c; plates, 31c; bars, 28c.

	A	B	C	D
Bars	19c	20.5c	23c	28c
Plates	21c	22.5c	25c	30c
Sheets	26c	27.5c	30c	35c
Hot strip	19c	20.5c	23c	28c
Cold strip	28c	29.5c	32c	37c

Carbon 0.12 and under; no nickel. A has chrome 15% and under, B over 15/18% inc., C over 18/23% inc., D over 23/30%.

Wrought Washers

Carloads, Pitts. dist.	$6.50 to $6.75 off
Carloads, Chicago dist.	6.70 to 6.80 off

Alloy Steel

Hot Rolled—F.o.b. Mills

Alloy Quality Bar Base is 2.65c

S.A.E.	Alloy Diff.	S.A.E.	Alloy Diff.
2000	0.25	1.25-1.75 Ni.	1.05
2100	0.55	5100 .80 - 1.10 Cr.	0.45
2300	1.50	51.00 Cr. spring	0.20
2500	2.25	6100 bars	1.20
3100	0.55	6100 Spring	0.95
3200	1.35	Cr., Ni., Van.	1.50
3300	3.80	Carbon Van.	0.95
3400	3.20	9250 (flats)	0.25
4100 .15 to .25 Mo.	0.50	9250 (rds., sq.)	0.50
4600 .20 to .30 Mo.			

Strip, Hoops, Bands

Hot strip, to 6-in., Pitts.	1.65c to 1.70c
Hot strip 6 1/16 to 24-in. Pitts.	1.55c to 1.60c
Hot strip, bands 6 in. and under, Chicago	1.75c to 1.80c
Do. 6 1/16 to 24 in.	1.65c to 1.70c
Cooperage hoop, Pitts.	1.90c to 2.00c
Do, Chicago	2.00c to 2.10c
Cold rolled strip, Pitts., Cleve., 3 tons, over	2.25c to 2.35c
Worcester, 3 tons, over	2.50c

Rails, Track Material

Standard bess. and open hearth rails, mill	$43.00
Relay rails, Pitts., 60 to 90 lb.	$24.00 to 28.00
Light rails, 25-45, mills	$34.00
Light rails, Chicago	$46.00
Angle bars, Chi. base	2.75c
Spikes, railroad, mills	2.80c
Spikes, railroad, 7/16-in. and smaller, Pitts.	2.80c
Spikes boat, barge, Pitts.	3.00c
Spikes, railroad, Chi.	2.80c
Track bolts, Pitts., steam roads	3.80c
Do. standard, jobbers	73 off list
Track bolts, Chicago	3.80c
Tie plate, mills	$39.00

Bolts and Nuts

Pittsburgh, Cleveland, Birmingham and Chicago

Discounts to legitimate jobbing or large consuming trade for full-case lots apply to May 10, 1930, lists.

CARRIAGE BOLTS

All sizes, cut thread ..... 73 off

Rolled thread ⅜ x 6 and smaller take 10 per cent lower list.

Eagle list ..... 73 off

MACHINE BOLTS

All sizes, cut thread, lag screws, plow bolts, Nos. 1-2-3-7 heads, tap bolts, blank bolts, stud bolts without nuts ..... 73 off

Tire bolts, 60, 10 and 10 off.

Stove bolts, 80, 10, 10, 5 off in pkgs.; 80, 10, 5, 2½ off in bulk.

Rolled thread machine bolts, ⅜ x 6 and smaller take 10 per cent lower list.

NUTS

Semifinished ..... 73 off

HEXAGON CAP SCREWS

Milled ..... 80-10-10-5 off

Upset 1 in. diam. and smaller ..... 85-10 off

SQUARE HEAD SET SCREWS

Milled ..... 80-5 off

Upset 1 in. and smaller ..... 80-10-5 off

Upset, larger than 1 in. ..... 80-5 off

Cut Nails, Chain, Piling

Cut nails, c.l., Pittsburgh do, less carloads, 5 kegs or over, 2.65c; and less than 5 kegs, 2.80c. 2.40c

Chain, BB, BBB, 9/16-1½ in. ..... 33 1/3 off

Sheet piling, Pitts. 1.90c

Bars

Demand and Specifications Are Better—Small Lots Prevail—Prices Are Unchanged

BAR PRICES, PAGE 87

Chicago—Bar specifications, at the best rate of this year, show notable gains. Releases of concrete bars for road and bridge work largely, orders from forgers, automotive parts makers, spring makers, cold finishers and road equipment concerns, contribute. More business is being taken at 1.75c, Chicago. Shipping orders for all heavy finished products are heavier. One producer reports specifications for finished material, of which 20 per cent was rails and trackage steel, about 25 to 30 per cent above recent weekly averages. Sales also have gained but in less proportion. Bar iron is quoted 1.75c, Chicago. Alloy bar mills operate 40 per cent.

New York—Commercial steel bars are holding at 1.65c, Pittsburgh, on new business. There have been few tonnages to test the market, but the fact that the current price has withstood the existing dullness is taken as indicative of fundamental strength of the market. The trend of buying is slightly up. Common iron bars are 1.60c to 1.75c, Pittsburgh, local condition continuing unsettled, with buying light.

Philadelphia—Steel bars are moving better at 1.65c, Pittsburgh, this price applying to new business generally. Orders range up to 300 tons. Iron bars are quiet at 1.60c to 1.70c, Pittsburgh.

Pittsburgh — Steel bar specifications are little changed from the rate of preceding weeks. January incoming business and shipments for some producers were as much as 50 per cent ahead of the December volume even though current activity still is seasonally light. A substantially slower rate of improvement is in prospect for February. Little business is appearing in the open market but producers quote 1.65c, Pittsburgh, on business not covered by contracts. Prompt delivery usually is specified on orders, which continue individually light.

Youngstown, O.—Agricultural implement makers are buying bars cautiously, much of the greatly restricted output of bars here going to cold-drawn makers. Some better business in alloy steel bars is coming to Canton mills from auto partsmakers. But generally the steel bar business is slow in coming back. The quotation of 1.65c, Pittsburgh, on bars holds firmly.

Cleveland—Local bar price continues at a spread of 1.65c to 1.70c, base, for both outside and local delivery. Orders are in fair volume from road machinery, automotive, electric washing machine makers. Consumers not heard from in five and six months come in for occasional commitments. No large lots are moving, however, and fail to afford pressure on price.

Cold-Finished Bar Orders Fail to Improve

Cold Finished Prices, Page 87

Cleveland—Expansion in cold-finished bar orders from automotive users was halted last week, the bulge in buying which followed the holidays having evidently satisfied needs for the time being. Some hand-to-mouth purchases continue from miscellaneous consuming lines. Makers continue to quote 2.10c, Cleveland, although shipments are still being made on 2.00c contracts.

Tin Plate Specifications and Operations Improve

Tin Plate Prices, Page 87

Pittsburgh—Tin plate releases are better than a month ago and operations continue to improve gradually. Current output for the industry is around 65 per cent, with some of the smaller producers holding at a capacity rate. Others who produced some tin plate late last year in anticipation of early 1931 requirements are proceeding at a slower rate than the average. The outlook for packers' cans continues good while tin plate requirements for general line can production is expected to compare favorably with that of last year. Tin plate is $5, Pittsburgh, per base box.

Plates

Specifications Better in Middle West—Tank Inquiry Totals 8000 Tons—Prices Are Steady

PLATE PRICES, PAGE 87

Chicago—Plate specifications have picked up. The 1.75c, Chicago, price has not been tested as no important sales are being made. Mills are operating at 40 per cent. About 8000 tons in storage tank inquiry are pending. Shipments of about 8000 tons of skelp for pipe production in the Milwaukee district are expected to start the latter part of the month. The pipe is for 75 miles of the 275-mile, 12-inch natural gas line of the Engineers Public Service Co., from El Paso, Tex., into Mexico, for the Western Gas Co. Bridge and tank specifications on earlier contracts are important.

New York—Although subject to occasional concessions, 1.75c, Coatesville, Pa., continues representative of the plate market. Some sellers show a tendency to include extra services, resulting in shading by competitors to meet this situation, but these instances are exceptional. Few outstanding tonnages are noted.

Philadelphia—Plates are easy at 1.75c, base, Coatesville, Pa. Little improvement in buying has been noted in the past two weeks. A fair amount of ship work is promised for February. Railroads are lagging.

Boston—Section A of the vehicular tunnel between Boston and East Boston will require 12,000 tons of fabricated plate segments, in addition to 1200 tons of shapes and plates and 2000 tons of concrete bars.

Pittsburgh—Plate business is confined mainly to small orders, with the aggregate slightly larger than several weeks ago. January activity showed a moderate gain over that of December. New barge inquiry includes eight wharf boats, requiring 360 tons, for the Gulf Refining Co. Pending work calls for only small lots. The market is provided little test by current business which generally is covered by contracts. Producers usually quote 1.65c, Pittsburgh.

Buffalo—Standard Oil Co. begins work this week on a $500,000 still and cracking unit at its Buffalo plants, taking a considerable amount of plates. The company will award subcontracts, handling the general construction itself.

Cleveland—Plate orders still are light. The most encouraging fact is price firmness at 1.65c, base, Pitts-

burgh. Sentiment among sellers is based on the belief that the trend of activity still is upward. The week has produced no outstanding awards or sizable inquiry. Some 3000 to 4000 tons of sheet piling is involved in local river straightening.

Washington—The navy department is taking bids on approximately 175 tons of hull steel for the yards at Hampton Roads, Va., and Mare Island, all but 7½ tons being for the latter point.

Contracts Placed

2500 tons, estimated, 20 to 36-inch electric weld pipeline for Vancouver, B. C., water board, to Vancouver Engineering Works Ltd., Vancouver.

605 tons, 42 to 48-inch riveted steel pipe, Los Angeles, to Lacy Mfg. Co. Inc., Los Angeles.

100 tons, small tanks for Associated Oil Co., San Francisco, to California Steel Products Co., San Francisco.

Contracts Pending

12,000 tons, fabricated plates, section A, vehicular tunnel, Boston to East Boston; bids close March 4 by transit commission, Boston; Ernest R. Springer, chief engineer.

4000 tons, mostly sheet piling, including also 100 tons of concrete bars, several hundred tons of shapes and castings, Monongahela river lock and dam near Pittsburgh; Dravo Contracting Co., Pittsburgh, low bidder.

3000 to 4000 tons, sheet piling, Cuyahoga river straightening project, Cleveland.

1100 tons, tank work, Hackensack, N. J., for Standard Oil Co. of New Jersey; originally noted as involving 600 tons.

360 tons, eight wharf boats for Gulf Refining Co., Pittsburgh.

Bolts, Nuts, Rivets Gain in January Sales

Bolts, Nuts, Rivets Prices, Page 87

Pittsburgh—January business in bolts, nuts and rivets was slightly larger than that of December despite a decline in specifications during the past week. Orders for replenishment of stocks have been fewer while requirements of most consumers show no additional expansion. Prices are steady at 73 off for bolts and nuts, and 2.75c for large rivets.

New York—Demand for bolts and nuts is quiet. Jobbers are specifying more freely. Prices are easy at 73 off the list. European importations are a market factor under existing

Chicago—Jobber buying of nuts, bolts and rivets has become more active, but implement orders are quiet. Heavier automotive demand is expected this month. Discounts remain unchanged at 64 to 73 off for nuts and bolts, and 70 to 70, 10 and 5 off for small rivets.

Railroads

Rail Specifications Active—Accessory Orders Heavy—Rolling Stock Buying Limited

TRACK MATERIAL PRICES, PAGE 87

Chicago—Rail mill specifications are more active. Railroads show a tendency to spread out shipping orders this season. February schedules are heavy, however, and it is probable rail mill operations may be forced above the existing 50 per cent rate. Grand Trunk awarded 15,000 tons of rails in this district. Track accessory orders are improving. Pennsylvania awarded 4000 tons of angle bars, tie plates and spikes to Chicago district mills, Pere Marquette bought 450 tons of fastenings. In all about 5000 tons has been released for shipment against orders placed in the last few months.

New York—Car buying continues listless, with inquiry spotty. Preliminary estimates indicate the placing of only 100 freight cars by domestic lines in January. This compares with 5072 in January, 1930, and 2729 in December.

New York Central distributes orders for 25,000 to 30,000 tons of tie plates, 30,000 to 40,000 kegs of spikes and 5000 kegs of nuts and bolts. Erie awarded this year's tie plate requirements, although tonnage is not announced. New York, New Haven & Hartford wants 1500 tons of tie plates.

Pittsburgh — Several railroads have closed on recent inquiries for track material. These include the New York Central, Erie, and Central Railroad of New Jersey. Little new inquiry is noted and specifications continue rather light. Demand for light rails is dull with the market usually quoted $34.

Cleveland—Nickel Plate has distributed orders for 27,400 tons of rails 6850 tons each to Carnegie Steel Co., Illinois Steel Co., Inland Steel Co., and Bethlehem Steel Corp. Optional tonnage included is understood to be 40 per cent.

Birmingham, Ala. — Rails for southern railroads now are being rolled at Ensley works Tennessee Coal, Iron & Railroad Co. Shipments will start at once on an export order for a few thousand tons.

Toronto, Ont.—The 30,000-ton order for 130-pound rails received by Algoma Steel Corp., Sault Ste. Marie, Ont., from Canadian Pacific railway, as noted last week, will keep the rail mill busy for two months on single shift. During its 2-month idle period the rail mill has been revamped to produce the heavier section. It will be reopened about Feb. 15, when an additional furnace will be blown in.

Car Orders Placed

Atchison, Topeka & Santa Fe, 14 cars, 12 75 and 80-foot 400 horsepower gasoline-electric cars to Pullman [illegible] Mfg. Corp., Chicago, and two 80-foot 550 horsepower combination baggage and mail cars, to J. G. Brill Co., Philadelphia.

Grand Trunk railroad, 15,000 tons, to Illinois Steel Co., Chicago.

Inland Steel Co., Chicago, 15 ingot cars, to Lorain Steel Co., Johnstown, Pa.

Rail Orders Placed

Nickel Plate, 27,400 tons of rals, 6850 tons each to Carnegie Steel Co., Pittsburgh, Illinois Steel Co., and Inland Steel Co., Chicago, and Bethlehem Steel Corp., Bethlehem, Pa.

Car Orders Pending

Ford Motor Co., Detroit, 50, 100 or 150 70-ton gondolas for handling billets; bids asked.

Fruit Growers Express, 20 underframes; inquiry withdrawn.

Sanitary District of Chicago, repairs to 20 air dump cars; inquiry revived.

Solvay Process Co., New York, one to six 10-000-gallon insulated tank cars, and 10 to 13 hoppers.

Locomotives Pending

Louisiana & Arkansas, three engines.

Adopt New Pipe Standard

Washington—I. J. Fairchild, division of trade standards, bureau of standards, has announced effective May 1 the standards for new production adopted for wrought iron pipe nipples will begin. Enough signed acceptances have been received from manufacturers, distributors and users to have the program become effective.

Less Iron, Scrap Barged

New York—In the navigation season of 1930 shipments of iron and steel products and scrap over the New York State Barge canal totaled 134,644 net tons, an increase of 60,147 tons over 1929. Pig iron shipments in 1930, at 113,054 tons, declined 60,766 tons. For all commodities, 1930 shipments totaled 3,605,457 net tons, an increase of 25 per cent over 1929.

Structural Shapes

Specifications Lighter—Awards Fairly Numerous but Small—Ford Assembly at Seattle, 3300 Tons, Leads—Inquiries Show Fair Activity in Some Sections

STRUCTURAL SHAPE PRICES, PAGE 87

Chicago—Structural shape specifications are light and operations are about 35 per cent. One large fabricator has completed work on about 40,000 tons as a part of the expansion program of a leading steelworks in South Chicago and Gary, Ind. The price range for plain material is nominal at 1.70c to 1.75c, Chicago. About 4800 tons is out for this district and western points, and bids for the South approach of the main span of the outer drive bridge, 6500 tons, will be asked at the end of this month.

Boston—Construction projects are slow to reach the contract stage. The general contract on Boston's postoffice has not yet been placed. A 480-ton telephone building at Watertown, Mass., went to New England Structural Co. Section A of the vehicular tunnel between Boston and East Boston will take 15,200 tons of steel, including 12,000 tons of fabricated plates, 1200 tons of plates and shapes and 2000 tons of concrete bars.

New York—Plain material prices hold at 1.905c, delivered New York. Fabricated and erected prices are steadier. Until material contracted for at lower prices is worked off, fabricators will probably not reflect the firmer stand taken by mills.

Philadelphia—Shapes are fairly steady at 1.75c, base, eastern mill, or 1.81c, Philadelphia. Demand is spotty. Outstanding prospective orders include 1000 tons for five Pennsylvania railroad bridges and 1300 tons of shapes and several hundred tons of concrete bars for a federal prison at Lewisberry, Pa.

Pittsburgh—Activity in fabricated structural steel in this district lags behind the average rate for the industry. No outstanding awards or inquiries are noted and pending work is made up mostly of small lots. Several large jobs are scheduled to appear for bids in the near future. Plain shapes are quoted 1.65c, Pittsburgh, on what little tonnage is not covered by contracts.

Buffalo—The Grand Island bridge commission will delay construction of two bridges over Niagara river until later in 1931. They will require 12,000 tons of shapes and 6000 tons of concrete bars. Work was scheduled for March but the time is not considered opportune for a bond issue.

Cleveland—With the award of about 1600 tons for Otis Steel Co.'s new continuous sheet mill building nearing the closing stage, and with the 1000-ton General Electric Co. wire mill building about to be closed, structural market possibilities are dwindling. No new inquiries are coming out outside of small repair or alteration items. Fabricated prices evidently are designed to obtain contracts, with profits secondary. Mills claim to be holding to 1.65c, Pittsburgh in the open market, the 1.60c figure applying on contract tonnages.

Birmingham, Ala. — Bookings of structural shapes are in small lots.

Contracts Placed

3300 tons, assembly plant at Seattle, Ford Motor Co., Detroit, to Bethlehem Steel Co., Bethlehem, Pa.

1000 tons addition to make award of west side elevated roadway job, New York, noted in Jan. 22 issue, 16,000 instead of 15,000 tons, to Fort Pitt Bridge Works Co., Pittsburgh.

850 tons, highway bridge, Sidney, Mont., to Virginia Bridge & Iron Co., Roanoke, Va.

760 tons, two bridges, Western Pacific railroad, to Virginia Bridge & Iron Co., Roanoke, Va., and Bethlehem Steel Co., Bethlehem, Pa.

725 tons, Union building, Indiana university, Bloomington, Ind., to Insley Mfg. Co., Indianapolis.

630 tons, telephone building, Tacoma, Wash., to Wallace Bridge & Structural Steel Co., Seattle.

600 tons, two bridges for Western Pacific Co., San Francisco, to Columbia Steel Co., San Francisco.

600 tons wharf at New Orleans, to Worden-Allen Co., Milwaukee.

590 tons, bridge, Bangor & Aroostook railroad, Brownville, Me., to American Bridge Co., Pittsburgh.

550 tons, store, 541 South Broadway, Los Angeles, to McClintic-Marshall Co., Los Angeles.

500 tons, sections for state highway bridge work in New Mexico, to El Paso Foundry & Machine Co., El Paso, Tex.

500 tons, railroad swing bridge across Louisiana-Texas intercoastal waterway, to Atlantic Bridge Co., Greensboro, N. C.

480 tons, building, New England Telephone Co., Watertown, Mass., to New England Structural Co., Boston.

430 tons, grade crossing elimination, Bowmansville, N. Y., to McClintic-Marshall Co., Pittsburgh.

400 tons, 22 steel dredge pontoons, United States engineers, St. Louis, to St. Louis Structural Steel Co., St. Louis.

400 tons, Northeast junior high school, Hamilton, Baltimore, to Bethlehem Fabricators Inc., Bethlehem, Pa.; William P. Langhorne & Co., Baltimore, general contractors.

354 tons, West Fortieth street bridge at Cleveland for Big Four railroad, Cincinnati, to Bethlehem Steel Co., Bethlehem, Pa.

350 tons, service station at Wyncote, Pa., for Philadelphia Electric Co., Philadelphia, to Belmont Iron Works, Philadelphia; Dwight P. Robinson Co., general contractor.

325 tons, shop building, naval base, San Diego, Calif., to McClintic-Marshall Co., Los Angeles.

300 tons, steamer hull for L. P. Hoskins, Portland, Oreg., to Barde Steel Co., Portland; 100 tons of plates for this job reported in STEEL of Jan. 29.

270 tons, addition to hospital, San Francisco to McClintic-Marshall Co. San Francisco.

240 tons, bridge over Southern Pacific tracks at Felton, Calif., to Judson-Pacific Co., San Francisco.

225 tons, temporary buildings, Seaview hospital, department of hospitals, Staten Island, N. Y., to Montgomery Iron & Steel Co., Philadelphia; Balaban-Gordon Co., general contractor.

220 tons, garage, East Eighty-seventh street, New York, to Easton Structural Steel Co., Easton, Pa.

200 tons, structural work, board of transportation, New York, to American Bridge Co., Pittsburgh.

160 tons, theatre, White Plains road, Bronx, N. Y., to Kues Bros. Iron Works, Bronx.

160 tons, reconstruction of Hawthorne bridge, Portland, Oreg., to Poole & McGonigle Inc., Portland.

150 tons, state highway bridge, Maryland, to Phoenix Bridge Co.

145 tons, Seventh street crossing, Oakland, Calif., to Judson-Pacific Co., San Francisco.

140 tons, grade crossing, Utica, N. Y., to McClintic-Marshall Construction Co., Buffalo.

140 tons, Charles Young platoon school, Washington, to Dietrich Bros., Balfimore; Graham Construction Co., Washington, general contractor.

125 tons, brdge work, Union Pacific railroad, to McClintic-Marshall Co., Pittsburgh.

125 tons, apartment, Shore road, Brooklyn, N. Y., to City Iron Works, Brooklyn.

100 tons, office building, Flushing, N. Y., to Berkshire Structural Steel Co., Brooklyn, N. Y.

100 tons, apartment, Kew Gardens, Long Island, N. Y., to Gold Seal Iron Works Inc., Brooklyn, N. Y.

100 tons, building, Standard Oil Co., Cleveland, to Burger Iron Co., Akron,

Awards Compared

	Tons
Awards this week	17,044
Awards last week	20,348
Awards two weeks ago	31,592
Awards this week in 1930	48,082
Av. weekly awards, 1930	35,242
Av. weekly awards, 1931	25,356
Av. weekly awards, Jan.	27,018
Tot. awards to date, 1930	181,412
Tot. awards to date, 1931	152,133

O.; Dresser Co., Cleveland, general contractor.

100 tons, 2-story addition, Dearborn Glass Co., 2512 West Twenty-first street, Chicago, to Sprague Iron Works, Chicago.

100 tons, mostly shapes, 4-room addition, Congress Heights school, Washington, to Barber & Ross Inc., Washington; also 20 tons of bars to Truscon Steel Co., Youngstown, O.; Fidelity Construction Co., Washington, general contractor.

100 tons, building, Southern Mineral Products Co., Amherst, Va., to Virginia Bridge & Iron Co., Roanoke, Va.

100 tons or more, work for Beauharnois Power Corp., Beauharnois, Que., to Dominion Bridge Co., Lachine Locks, Que.

100 tons, shapes and bars, 3-story hospital unit, Bridgeport, Conn., 55 tons shapes to V. W. Tarney, Bridgeport; Fireproof Products Co., New York; 45 tons, joists and reinforcing bars to E. & F. Construction Co., Bridgeport, general contractor.

100 tons, shapes and bars, Northampton street school, Washington, to Henry A. Hitner's Sons, Philadelphia; 25 tons reinforcing bars to Truscon Steel Co., Youngstown, O.; C. S. Bannett Inc., Philadelphia, general contractor.

100 tons, school, 25th and Noe streets, San Francisco, to Judson-Pacific Co., San Francisco.

100 tons, bridge over Sonoma creek, Santa Rosa, Calif., to Dyer Bros., San Francisco.

Contracts Pending

15,000 to 20,000 tons, parcel post building, New York; bids expected late this month.

4000 tons. bridge at Booneville, Ark.

3100 tons, Commonwealth building, Portland, Oreg.

2000 tons, Lafayette Square apartments, San Francisco; bids to be asked.

2000 tons, Lloyd hotel, Portland, Oreg.

1900 tons, bascule bridge, Harlem avenue, Chicago.

1300 tons, federal prison, Lewisberry, Pa.; general contract to Great Lakes Construction Co., Chicago.

1200 to 2500 tons, office building, Standard Oil Co., Washington; bids Feb. 11.

1200 tons, shapes and plates, section A, vehicular tunnel, Boston to East Boston; bids close March 4 by transit commission, Boston; Ernest R. Springer, chief engineer.

1000 tons, highway bridge at Prairie du Chien, Wis.

1000 tons, club house, Knights of Columbus, Minneapolis.

1000 tons, five bridges in Pennsylvania, Pennsylvania railroad.

1200 tons, dam gates for project at Rock Island, Wash.; bids in.

1000 tons, postoffice, Springfield, Mass.; bids deferred to Feb. 16.

900 tons, bessemer converter building, Wisconsn Steel Co., South Chicago, Ill.

700 tons, Verdi school, Chicago; readvertised; A. Bolter's Sons, low bidders.

700 tons, addition to merchant mill, Wisconsin Steel Co., South Chicago, Ill.

700 tons, federal building, Portland, Oreg.

600 tons, stadium for Oklahoma Agricultural and Mechanical college, Stillwater, Okla.

500 tons, produce terminal at Baltimore for Pennsylvania railroad; general contract to M. A. Long Co., Baltimore.

500 tons, public school No. 106, St. Raymond avenue, Bronx, N. Y.; bids Feb. 10.

500 tons, bridge over Delaware river, near Trenton, N. J.; readvertised.

500 tons, St. Agnes hospital, White Plains, N. Y.

480 tons, Fremont high school, Oakland, Calif.; bids opened.

350 tons, addition, public school No. 101, Benson avenue, Brooklyn, N. Y.; bids Feb. 10.

300 tons, radio antenna towers, department of commerce, Washington; bids in.

300 tons, Turtle Creek, overhead bridge, Rock county, Wis.; bids close Feb. 12.

140 tons, two bridges, route 4, section 3, Grand and Broad avenues, Bergen county, N. J.; bids Feb. 16.

110 tons, jail at Bath, N. Y.; F. W. Morse Construction Co., Buffalo, low at $141,400.

102 tons, bridge, Louisiana highway commission; letting Feb. 10.

100 tons, overhauling, Grand avenue bridge, Eau Claire, Wis.; Worden-Allen Co., Milwaukee, low bidder.

Unstated tonnage, Bridge street bridge at Wausau, Wis.; estimated cost $270,000; bids abot July 1.

Unstated tonnage, included in 4000 tons of steel for Monongahela river lock and dam near Pittsburgh; Dravo Contracting Co., Pittsburgh, low bidder.

Concrete Bars

Chicago Postoffice to Take 5000 Tons—Bids Rejected on Sewage Disposal Unit in Illinois — Awards Lighter but Inquiry Holds—Prices Firmer in New York

REINFORCING BAR PRICES, PAGE 87

New York—Concrete bar prices have settled to 1.65c, Pittsburgh, for stock lengths, placing this market in line with other sections. Business held to 1.70c until recently but shading became more frequent. Volume in this immediate territory is off, but fresh inquiry outside the metropolitan area holds well.

Boston—While the past week was one of the best of the year so far in point of concrete bar awards, some of it will extend throughout the year, 1000 tons representing Maine state road work for 1931.

Pittsburgh—The feinforcing bar outlook continues favorable. Prospective work involves fair tonnages although awards continue light. January business was seasonally good though smaller than a year ago. Prices show a steadier tone at 1.90c to 2.00c for cut lengths and 1.65c to 1.75c for stock lengths.

Chicago—Reinforcing bar awards are light except for road and bridge work. A 700-ton structure for University of Chicago is the largest building award in several months. Bids have been rejected for the Chicago sanitary district unit, 5000 tons, at Stickney, Ill. All billet bar fabricators are reported to be quoting 2.00c minimum.

Washington—With a bid of 2.013c, United States Steel Products Co. was low on 500 tons of concrete reinforcing bars for Panama. Hudson-Daugherty Co. was awarded 350 tons for a federal prison in Ohio.

Buffalo—New inquiries for reinforcing bars include 520 tons for an addition to American Warehouse Co.'s waterfront property here and 160 tons for the city's marine airport. Both orders are expected soon.

Cleveland—Two thousand tons of reinforcing steel, 1000 tons straight fabricated bars, are to be bought reinforcing bars and 1000 tons of within a week for the Central-Lorain bridge here by Lowensohn Construction Co.

Birmingham, Ala. — Dealer demand to replenish stocks of concrete bars supports present steady operations among producers.

Awards Compared

	Tons
Awards this week	**4,631**
Awards last week	**12,990**
Awards two weeks ago	**4,981**
Awards this week in 1930	**4,114**
Av. weekly awards, 1930	**6,990**
Av. weekly awards, 1931	**6,881**
Av. weekly awards, Jan	**7,331**
Total awards to date, 1930	**21,076**
Total awards to date, 1931	**41,284**

Contracts Placed

1000 tons, Maine road work for 1931, to Bancroft & Martin Rolling Mills Co., Portland.

750 tons, building, New York Telegram, West street, New York, to Carroll-McCreary Co. Inc., Long Island City, N. Y.; Industrial Engineering Corp., general contractor.

500 tons, state capitol building, Baton Rouge, La., to Dudley Bar Co., Birmingham, Ala.

350 tons, department of justice, superintendent of prisons, Washington, for work in Ohio, to Hudson-Daugherty Co., Washington.

300 tons, foundations, war memorial, San Francisco, to Pacific Coast Steel

(*Concluded on Page 95*)

Strip

Trend Slightly Upward—Backlogs Are Absent—Buying Is in Small, Prompt Lots

STRIP PRICES, PAGE 87

Pittsburgh—Strip steel business fluctuates considerably from day to day with the average trend gradually upward. January showed a definite improvement both in orders and shipments, compared with December. Small lot orders prevail. Prices are untested by large lots but are steady at 1.55c to 1.60c for wide hot strip, 1.65c to 1.70c for narrow material and 2.25c to 2.35c for cold-rolled strip. Producers usually operate only part of the week with the average continuing about 35 per cent for hot mills and 20 to 25 per cent for cold mills.

Philadelphia — Demand for steel strip is sluggish. Wide and narrow hot-rolled are quoted at 1.55c and 1.65c, Pittsburgh. Cold-rolled is firm at 2.25c.

Cleveland—Hot strip orders were fewer last week and practically nothing was done in cold strip. Automotive users are limited to the few who have been active since the first of the year. Prices are unchanged, 2.25c to 2.35c, Cleveland, on cold, and 1.55c and 1.65c, Pittsburgh, being quoted on wide and narrow hot strip, respectively.

Chicago—Despite moderate gains in automotive orders, cold-rolled strip mills have no substantial backlogs. Buyers limit specifications to actual necessities. Cold-rolled prices are based on 2.25c to 2.35c, Pittsburgh-Cleveland.

Jobbers' January Hopes Fail to Materialize

Warehouse Prices, Page 109

Chicago—Despite January buying spurts, warehouse sales at the end of the month lagged, and barely perceptible gains over December were noted. A few warehouses report January was the first month in nearly a year to show a gain over a preceding month. Cold-rolled products are slow. Hot-rolled bars are leading in activity. Sheet jobbing is light. Prices are unchanged.

Boston—Material from warehouse has not moved very rapidly during the past week. A fair assortment of odd jobs continue. Prices are unchanged.

New York—Increasing stability in sheets has extended to other products. Most of these products had not been as unsettled as sheets, but had been subjected to concessions. Notwithstanding that buying in January showed only little gain over December, the tone appears stronger than in months.

Philadelphia—Warehouse market is quiet and unchanged. Leading jobbers report January business about comparable to December. This is the first time in a number of years that January has failed to show a gain over December.

Pittsburgh—January sales for a number of jobbers were smaller than during December. Orders are steady in number but light in tonnage. Prices generally are unchanged but shading is noted in bars and blue annealed plates.

Buffalo—Warehouses report an increase in their business proportionate to the general improvement which has taken place in finished iron and steel since Jan. 1.

Cleveland—There has been some slight easing of demand for iron and steel out of warehouse. Orders previously had risen to the highest rate in months, with jobbers in a number of cases facing shortages of certain lines of stock. Prices continue unchanged.

Detroit—Orders have been good in the past week with a few decidedly outstanding days recorded in point of activity. Volume of business is less than a year ago at this time. Prices are unchanged.

Cincinnati — Sales in January slightly exceeded those in the preceding month. Orders continue light. Prices are unchanged.

St. Louis—Full expectations of iron and steel warehousemen of January business volume were not realized. While considerable betterment over December was reported by all the leading interests, business was irregular and lacked continuity. Materials for railroad shops were considerably more active than heretofore, and there was also a better call for track supplies.

Operating Curve Flattens at 48 Per Cent Rate

Youngstown, O.—Steel plant operations remain unchanged at 50 per cent capacity. For the first week since low levels of late December, mill activity failed to show a gain. Sharon Steel Hoop and General Fireproof operations advanced 3 points to 73 per cent. Sharon's gain was due in part to the lighting Jan. 31 of its blast furnace at Lowellville. Empire Steel Corp. suspended operations at its Falcon plant, leaving all three sheet plants of the company in this district idle. Newton Steel Co. reports operations unchanged this week at 70 per cent of capacity. Sheet & Tube is unchanged at 50, Carnegie at 50 and Republic at 40 per cent. Truscon operations are again at 60 per cent.

Philadelphia—Eastern ingot operations are up one point this week to an approximate 47 per cent capacity. One large mill is expected to increase output shortly to above 50 per cent because of accumulated orders on hand.

Pittsburgh—Operating schedules are fairly steady with steel ingot production continuing around 45 per cent. Of 54 steelworks blast furnaces in the Pittsburgh district, 19 are in blast. Tin plate output is up slightly at 65 but sheet schedules are lower at 38. Strip mills hold around 35 with pipe output also at 35.

Buffalo—Steelworks continue to operate at 54 per cent of rated capacity. Schedules call for continuation of this rate this week at least.

Cleveland—Unchanged at 50 per cent capacity, local steelworks total 17 of 34 open hearths active. Otis Steel reports better inquiry at Lakeside foundry, though River works continue unchanged, as does each of the other mills.

Chicago—With ingot operations at 45 to 47 per cent, Chicago district again has made a slight gain. Several open hearths have been added and steelworks blast furnaces have gained with an additional stack on this week. Wisconsin Steel lighted another furnace to make 14 of the 36 steelworks furnaces in the district active. Bar and sheet mills are among the more active finishing mill departments.

Birmingham, Ala.—Ingot production is down two points to about 58 per cent capacity. Fourteen of 23 open-hearth furnaces are producing. Sheet and plate mills are operating at 50 per cent. Wire and nail mills are lagging.

Northwestern Steel Products Co., 4545 Homer avenue, Chicago, has increased capital from $10,000 to $15,000, with 5000 shares no par value unchanged.

Concrete Bars

(*Concluded from Page* 91)

Corp., San Francisco.

250 tons, store, 541 South Broadway, Los Angeles, to unstated interest.

230 tons, nurses' home, Veterans' bureau, Memphis, Tenn., to Jones & Laughlin Steel Corp., Pittsburgh; Algernon Blair, Montgomery, Ala., general contractor.

200 tons, apartment, Beverly boulevard and Gramercy place, Los Angeles, to unstated interest.

150 tons or more, work for Beauharnois Power Corp., Beauharnois, Que., to Steel Co. of Canada, Ltd., Hamilton, Ont., Canadian Car & Foundry Co., Montreal, Que., and Burlington Steel Co. Ltd., Hamilton.

146 tons, service building for Santa Clara county, Calif., to W. C. Hauck & Co., San Francisco.

145 tons, postoffice, Fall River, Mass., to Concrete Steel Co., New York.

110 tons, Wendell Phillips school, Chicago, to unstated interest.

100 tons, Fox west coast theater, Phoenix, Ariz., to Colorado Fuel & Iron Co., Pueblo, Colo.; 30 tons structural steel to Virginia Bridge & Iron Co., Memphis, Tenn.; Robert E. McKee, El Paso, Tex., and Los Angeles, general contractor.

100 tons, apartment, Hobart near Fifth street, Los Angeles, to unstated interest.

100 tons, warehouse, E. G. Schafter & Co. Inc., Washington, to Capital Fireproofing Co., Washington.

100 tons, pump station and drainage basin 7, New Orleans, to Ole K. Olsen, New Orleans; 72 tons structural steel and cast iron, to Southern Steel Co., Birmingham, Ala.; G. F. Favrot, general contractor.

100 tons, state bridge, Indiana county, Pennsylvania, to Truscon Steel Co., Youngstown, O.; Williamson Construction Co., general contractor.

Contracts Pending

5000 tons, sewage disposal unit at Stickney, Ill., for Chicago sanitary district; bids rejected.

5000 tons, Chicago post office and federal building; bids within 60 days.

2000 tons, section A, vehicular tunnel between Boston and East Boston, Mass.; bids closed March 4 by transit commission, Boston, of which Ernest R. Springer is chief engineer.

2000 tons, 1000 tons each straight reinforcing cars and fabricated bars for Central-Lorain bridge, Cleveland, to be awarded withn a week by Lowensohn Construction Co., Cleveland, general contractor.

1500 tons for highway work, Illinois state highway department, Springfield, Ill.

810 tons, highway, bridge approach pavement and six small span bridges, three of which are culverts, route 42, section 6, Weymouth to McKee City, Atlantic county, N. J.; bids Feb. 16.

800 to 900 tons, 9-story office building, Columbus, O.; general contract to E. Elford & Son, Columbus, O.

520 tons, waterfront warehouse addition, American Warehouse Co., Buffalo; Monarch Engineering Co., Buffalo, general contractor.

500 tons, federal prison, Lewisberry, Pa.; general contract to Great Lakes Construction Co., Chicago.

500 tons, work for United States government at Panama Canal zone; United States Steel Products Co., New York, low at 2.013c.

475 tons, highway route 40, section 5, including two small span bridges, Burlington county, New Jersey; bids March 2.

440 tons, highway route No. 39, section 2, Burlington county, New Jersey; bids March 2.

300 tons, work for Chicago sanitary district, at Twenty-sixth street and Blue Island avenue, Chicago.

250 tons, state highways and bridges in Connecticut, 11 general contracts awarded; John A. MacDonald, highway commissioner.

240 tons, highway work in San Joaquin county, Calif.; bids Feb. 18.

225 tons, ramps and underpasses, section 3, Suffolk county, Long Island, N. Y.; bids Feb. 10, Long Island State Park commission.

203 tons, Fremont high school, Oakland, Calif.; bids opened.

200 tons, building, General Electric Co., Cleveland; bids in.

200 tons, building, Otis Steel Co., Cleveland; bids in.

200 tons, May Co. department store addition, Cleveland; bids in.

200 tons, Webster street pier, Oakland, Calif.; bids opened.

200 tons, highways, federal aid projects in Tex., including a small bridge.

195 tons, highway construction, Louisiana highway commission; letting Feb. 10.

175 tons, state bridges, Virginia; bids Feb. 10.

160 tons, city marine airport, Buffalo; bids Feb. 5.

150 tons, Turtle Creek bridge overhead, Rock county, Wis.; bids Feb. 12.

125 tons, highway, county road No. 39, North Salem, Westchester county, N. Y.; bids in.

125 tons, two bridges, route 4, section 3, Grand and Broad avenues, Bergen county, N. J.; bids Feb. 16.

125 tons, building, Union Leader Newspaper Publishing Co., Manchester, N. H.

100 tons, building, New England Telephone Co., Holyoke, Mass.

100 to 200 tons, South high school, addition, Cleveland; general contract to Aronberg-Fried Co.,

100 tons, building, Mt. Holyoke college, Hadley, Mass.

Personals

(*Concluded from Page* 31)

vice president and Fuller F. Ross was made secretary. Other officers are: Edward K. Klingelhofer, president, and J. A. McEwen, vice president.

□ □ □

R. B. McColl has been elected president and director of McIntosh & Seymour Corp., Auburn, N. Y., and New York, to succeed A. E. Ballin, retired. He has been manager of the Schenectady, N. Y., plant of American Locomotive Co., since 1925. He had been identified with it since June, 1922, as assistant manager, having previously served five months in the New York sales office.

Pipe

Municipal Buying Not Sustained—Utility Orders Dwindle—75 Miles of Gas Line Let

PIPE PRICES, PAGE 109

Pittsburgh—January brought no improvement in demand for butt-weld or lapweld pipe. For some producers it was a quieter month than December. Oil country goods also are dull, with the outlook dimmed by conditions in the industry. Business in mechanical tubing and locomotive and boiler tubes increased moderately last month, the gain for some interests being around 25 per cent, but recent demand has been steady with no expansion. Financing continues an important factor in several prospective line pipe projects, some of which are expected to be closed in the near future. Standard Oil Co. of New York has temporarily abandoned its 100-mile gasoline line for New England, while Western Gas Co. has announced plans for a 275-mile 12-inch natural gas line for the Southwest.

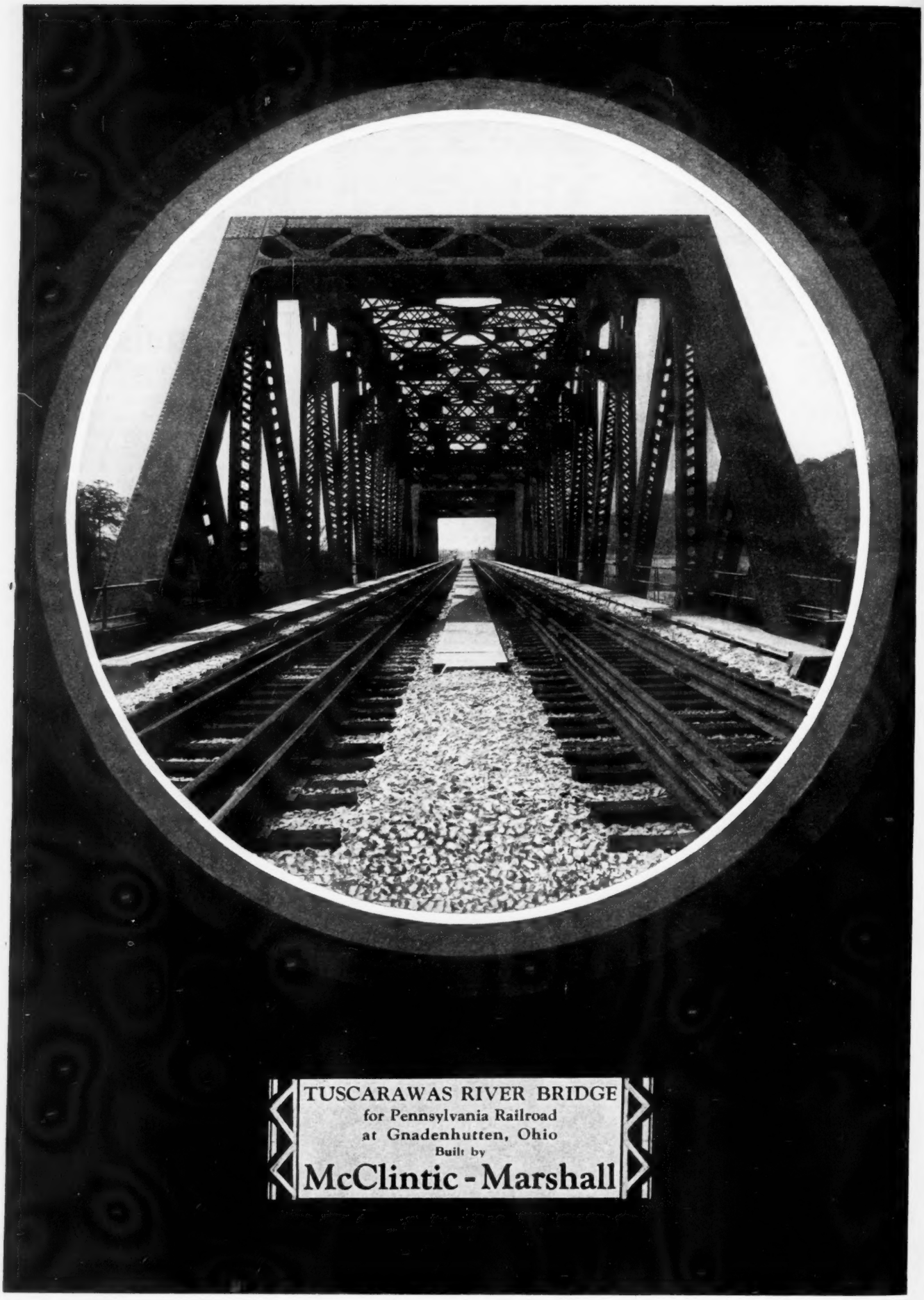
Boston—Cast pipe prices remain firm. A little more than 700 tons, mainly small sizes, was awarded the past week.

New York—Cast pipe prices are soft, $35 eastern foundry being shaded on attractive orders. Foundries do not average higher than 50 per cent. Some are down for repairs and new equipment installations.

Chicago—Bids taken the first of the week for the Detroit tonnage were on 1800 tons of 6 and 8-inch cast pipe instead of 3500 tons. St. Louis is tabulating bids on 800 tons of 6 and 8-inch cast. About 1700 tons of cast pressure pipe will be let by the Chicago sanitary district through contractors. Private sales are based on delivered prices of $45.20 to $46.20 for 6 to 24-inch cast. From 1500 to 2000 tons of public utility work has just been closed for immediate shipment.

Cleveland—Pipe orders are scarce. Jobbers' stocks of standard full weight merchant pipe while small are well balanced and their turnover so far this season has not been large.

Birmingham, Ala.—Fair cast pipe inquiries are current and the volume of bookings is satisfactory. Signs of improvement are noticed and 1931 probably will be a better year than



TUSCARAWAS RIVER BRIDGE
for Pennsylvania Railroad
at Gnadenhutten, Ohio
Built by
McClintic - Marshall

T. J. Skillman, *Chief Engineer*, Pennsylvania RR. Co. W. D. Wiggins, *Chief Engineer*, Central Region. J.F. Leonard, *Engineer of Bridges and Buildings*, Central Region

1930. Bids now are out on scattered requirements.

Contracts Placed

3000 tons, 6 to 12-inch cast pipe for Massapequa, Long Island, N. Y., water system; readvertised.

2000 tons, up to 18-inch, mostly 12-inch cast pipe for water system Brentwood, Long Island, N. Y., state hospital, to United States Pipe & Foundry Co., East Burlington, N. J.

300 tons, 6, 8 and 12-inch cast gas pipe for a utility interest, Boston, to Warren Foundry & Pipe Co., Phillipsburg, N. J.

200 tons, 6 and 8-inch cast pipe for Framingham, Mass., to Warren Foundry & Pipe Co., Phillipsburg, N. J.

200 tons, mostly 12-inch, for Brentwood, Long Island, N. Y., state hospital, to Warren Foundry & Pipe Co., Philipsburg, N. J.

184 tons, 20-inch class B cast pipe, San Bernardino, Calif., to American Cast Iron Pipe Co., Birmingham, Ala.

114 tons, 6 and 8-inch cast pipe for [illegible] Corp. to Warren Foundry & Pipe Co., Phillipsburg, N. J.

100 tons, 8-inch cast pipe for Nahant, Mass., to Donaldson Iron Co., Emaus, Pa.

Unstated tonnage, 1931 requirements of cast pipe for Woonsocket, R. I., to Warren Foundry & Pipe Co., Phillipsburg, N. J., instead of to United States Pipe & Foundry Co., as noted last week.

Steel Pipe Orders

8000 tons, for 75 miles of the 275-mile 12-inch natural gas line from El Paso, Tex., into Mexico for Western Gas Co., to be built by Engineers Public Service Co., awarded A. O. Smith Corp., Milwaukee, at approximately $1,500,000.

1500 tons, 60-inch steel pipe for Boston water department, Boston, reported awarded to Walsh-Holyoke Steam Boiler Works, Holyoke, Mass.; through E. I. Cristiforo Bros., Boston.

Contracts Pending

1845 tons, various sizes of cast pipe with 25 tons of castings for Pembroke, Mass.; bids close Feb. 10.

1700 tons, miscellaneous sizes of cast pipe for Chicago sanitary district, to be awarded through contractors.

1500 tons, of cast pipe for water works department needs in 1931, board of public works, South Bend, Ind.; bids being received.

900 tons, 12-inch cast pipe for New York; bids Feb. 10, contractors' letting.

500 tons, 12 and 16-inch cast pipe for St. Cloud, Minn.; bids in.

200 tons, 4, 6, 8 and 10-inch cast pipe for Quincy, Mass.; bids closed Feb. 2.

Steel Pipe Pending

5100 tons, steel gasoline line for Standard Oil Co. of New York, between East Providence, R. I., and Springfield and Worcester, Mass.; project temporarily abandoned.

1000 tons, approximately, 66-inch steel water pipe for Detroit; bids Feb. 3.

Unstated tonnage, United States navy department, Washington, 5700 boiler tubes for Mare Island, Pa., and 302 boiler tubes for Norfolk, Va.; bids being taken.

Wire

Annealed Fence and Galvanized Wire on Higher Schedule —Demand Shows Little Change

WIRE PRICES, PAGE 87

Pittsburgh—Wire producers have announced new prices on annealed fence wire and galvanized wire. Effective immediately on all new business, quotations on these two products will be separated from the wire nail base formerly employed. Annealed fence wire now is priced to jobbers as well as consumers at 15 cents per 100 pounds over the plain wire base of 2.20c, making a new price of 2.35c, while galvanized wire is 60 cents per 100 pounds above the plain wire base, or 2.80c. The new prices represent advances of $6 a ton over former quotations to the jobbing trade. Most buyers now are covered by lower price contracts. January business in wire products showed little improvement over December but recent activity tends to better demand this month. Prices generally are steady at $1.90 to $2 for wire nails, 2.20c to 2.30c for plain wire and $35 for wire rods.

Worcester, Mass.—Demand for wire is reported showing some gain but there is no indication that it is anything beyond the seasonal increase after the December slump. Prices are holding, the current quotation in plain bright wire to dealers remaining at 2.40c base, Worcester.

New York—Sellers of nails are looking for a seasonal improvement in building to stimulate demand soon. Meanwhile, nails are unchanged at $1.90, Pittsburgh, to jobbers, and $2 to the general trade. Plain bright wire is firm at 2.20c, Pittsburgh, with some smaller business going at 2.30c. The market reflects improving demand in other districts, particularly in the Middle West.

Philadelphia—Wire is unchanged and steady at 2.20c, Pittsburgh, for plain wire and $1.90c, Pittsburgh, the minimum for nails. Wire rods continue at $35, Pittsburgh.

Cleveland—Wire and wire products orders by one seller in this district last week made the best volume for any week in two months. However, small orders predominate. Jobbers in wire products, especially fencing, to the country districts, have increased specifications. Manufacturers using plain wire are placing fairly good orders. Customers in general want quick delivery, often impossible from mills with curtailed banks of semifinished. Prices are reported firm and unchanged with plain wire 2.20c to 2.30c, wire rods, $35. Nails at a minimum of $1.90 a keg, have not been reduced to meet unconfirmed rumors of lower price.

Chicago—Slow buying of wire products leaves prices untested in this market. Western wire mills quote $1.95 to $2.05 for wire nails, and 2.25c to 2.35c, Chicago or western mills, for plain wire. Affected by the drought in several localities, jobber orders lack spirit. Only conservative specifications for limited shipments appear. The January gain was only about 10 per cent over December, the low month of 1930. Dealer buying is changed little from December.

Semifinished Orders More Numerous, Still Small

Semifinished Prices, Page 98

Pittsburgh — Small orders for semifinished steel are slightly more numerous. Purchases are confined to early requirements, consumers preferring to buy for spot needs. January shipments were moderately heavier than December's. Prices are steady at $30 for rerolling billets, slabs and sheet bars, with wire rods continuing $35, and forging billets $36.

Youngstown, O.—Movement of billets and sheet bars to consuming mills continues light. Active independent open hearths number 26 this week out of a district total of 51 units. Contracts are few in number as deliveries are easy. Billets, slabs and sheet bars continue $30, Youngstown and Pittsburgh.

Cleveland—Demand for semifinished steel varies considerably from week to week but the total volume of business still is small. Current specifications show a rising tendency. Operations are unchanged, and the usual price of sheet bars, billet and slabs continues $30, Cleveland and Youngstown, O.

Simplified practice recommendations for manufacturers, distributors and users of files and rasps and of roofing ternes made by the bureau of standards, Washington, have been reaffirmed without change for a period of one year.

Raw Material Prices

Pig Iron

Per Gross Ton

FOUNDRY, NO. 2

Chicago furnace	$17.50
Pittsburgh, district fur.	17.50
Pittsburgh, delivered	18.13 to 18.63
Valley, furnace	17.00
Cleveland fur., local del.	17.50
Philadelphia, delivered	17.76
Virginia, furnace	17.75
Granite City, Ill., fur.	17.50
Buffalo, fur., local del.	17.50
Buffalo, del. Boston	21.41 to 21.91
Buff., all-rail, Brooklyn	20.41 to 20.91
Buff., all-rail Newark	18.28 to 18.78
Ala., Bir. fur., local del.	13.00 to 14.00
Alabama, del. Chicago	17.01
Alabama, del. St. Louis	14.92 to 15.42
Alabama, del. Cincinnati	14.69 to 16.19
Alabama, del. Cleveland	16.51
Ala., Phila., dock del.	15.75 to 16.25
Ala., Balt., dock del.	15.50 to 16.00
Alabama, New York dock	16.00 to 16.50
Ala., Boston dock del.	16.25 to 16.75
Tenn., Bir. base, local del.	14.00
Tennessee, del. Cinn.	14.69 to 16.69
Montreal, delivered	23.50
Toronto, delivered	22.10

FOUNDRY, NO. 2X

Buffalo, fur., local del.	18.00
Buff., all-rail, Brooklyn	20.91 to 21.41
Buffalo, all-rail Newark	18.78 to 19.28
Buffalo, del. Boston	21.91 to 22.41
Virginia furnace	18.25
Eastern, del. Phila.	18.26

FOUNDRY, NO. 1X

Buffalo fur., local del.	19.00
Eastern, del. Phila.	19.26

MALLEABLE

Valley furnace	17.50
Cleveland fur., local del.	17.50
Pittsburgh district fur.	18.00
Pittsburgh, delivered	18.63 to 19.13
Chicago, furnace	17.50
Buffalo fur., local del.	18.00
Eastern Penna., delivered	18.26 to 20.91
Granite City, Ill., fur.	17.50
Montreal, delivered	24.00
Toronto, delivered	22.60

BASIC

Pittsburgh dist. fur.	17.50
Pittsburgh, delivered	18.13 to 18.63
Eastern Penn., del.	17.25 to 17.75
Buffalo fur., local del.	17.00
Montreal, delivered	20.50
Valley furnace	17.00

BESSEMER

Valley furnace	17.50
Pittsburgh, delivered	18.63 to 19.13
Pittsburgh, furnace	18.00

LOW PHOS.

Valley fur., standard	27.00
Philadelphia, standard	24.76 to 28.79
Copper-bear., E. Pa. fur.	22.50 to 23.00

GRAY FORGE

Valley furnace	16.50
Pittsburgh district fur.	17.00
Pittsburgh, delivered	17.63 to 18.13

CHARCOAL

Lake Superior, del. Chi.	27.04

SILVERY

Jackson County, O., fur., in per cents 6—$21; 7—$21.50; 8—$22; 9—$22.50; 10—$23; 11—$24; 12—$25; 13—$27.

BESSEMER FERROSILICON

Jackson County, O., fur., in per cents 10—$25; 11—$26; 12—$27; 13—$29; 14—$31; 15—$33; 16—$35.

Coke

Prices Per Net Tons

Beehive Ovens

Connellsville furnace	$2.50 to 2.60
Connellsville foundry	3.25 to 4.85
New River foundry	6.00
Wise county foundry	4.25 to 5.00
Wise county furnace	3.50 to 4.25

By-Product Foundry

Newark, N. J., del.	9.00 to 9.40
Chicago ovens	8.00
New England, del.	11.00
St. Louis, del.	9.00
Birmingham, ovens	5.00
Indianapolis, del.	8.25
Ashland, Ky., ovens, Connell., basis	5.50
Portsmouth, O., ovens, Connell., basis	5.50
Buffalo ovens	8.00 to 8.50
Detroit, ovens	8.50
Philadelphia, del.	9.00

Iron Ore

LAKE SUPERIOR ORE

Gross ton, 51½%, Lower Lake Ports	
Old range bessemer	$4.80
Mesabi bessemer	4.65
Old range nonbessemer	4.65
Mesabi nonbessemer	4.50
High phosphorus	4.40

EASTERN LOCAL ORES

Cents per unit delivered at Eastern Pennsylvania and New Jersey furnaces

Foundry and basic, 56-63%, contract	10.00
Copper-free low phos. 58-65%	nom.

FOREIGN ORE

Cents per units, alongside docks Atlantic ports

Foreign manganiferous ore, 45-55% iron, 6-10% manganese	10.00
North African low phosphorus	9.00
Swedish basic, 65%	9.00
Swedish low phos.	10.00
Spanish, North African basic, 50 to 60%	9.00
Newfoundland fdy., 55%	9.00
Tungsten, spot and future short ton unit, duty paid	$11.25 to 12.50
Chrome ore, 48% net ton c.i.f.	$21.50 to 22.00

Manganese Ore

Prices, not including duty, are cents per unit; cargo lots.

Caucasian, 52-55% (nom.)	26 to 28 cents
South African, 52-53%	24 to 26 cents
Indian, 48-50%	nom.
Brazilian, 46-48% (nom.)	23 cents

Refractories

FIRE CLAY BRICK

Per 1000 f.o.b. Works

First Quality

Pennsylvania, Ohio, Illinois, Kentucky, Missouri, Maryland	$43.00
Georgia, Alabama	40.00 to 47.00

Second Quality

Pennsylvania, Ohio, Illinois, Kentucky, Missouri, Maryland	35.00 to 38.00
Georgia, Alabama	30.00 to 35.00

SILICA BRICK

Pennsylvania	43.00
Joliet, Ill., East Chicago, Ind.	52.00
Birmingham, Ala.	50.00 to 51.00

MAGNESITE BRICK

Per Net Ton

9 x 4½ x 2½	$65.00

MAGNESITE

Dead burned grain, net ton, Chester, Pa., or Baltimore bases	40.00
Domes, Chewelah, Wash., base	22.00

CHROME BRICK

Net ton, Chester, Pa., and Baltimore base, 9 x 4½ x 2½	45.00

Semifinished Steel

PRICES PER GROSS TON

BILLETS AND BLOOMS

4 x 4-inch base

Pittsburgh, open-hearth	$30.00
Pittsburgh, bessemer	30.00
Youngstown	30.00
Cleveland	30.00
Philadelphia	35.30 to 36.30
Chicago	31.00
Forging, Chicago	36.00
Forging, Pittsburgh	36.00
Forging, Philadelphia	40.30 to 41.30

SHEET BARS

Pittsburgh	30.00
Youngstown	30.00
Cleveland	30.00
Chicago	31.00

SLABS

Pittsburgh	30.00
Youngstown	30.00
Cleveland	30.00

WIRE RODS

Pittsburgh, Cleveland	35.00
Chicago	36.00

SKELP

All grades, Pittsburgh	1.60c

Ferroalloys

(In dollars, except Ferrochrome)

*Ferromanganese, 78-82%, tidewater, duty paid	$85.00
*Ferromanganese, del. Pittsburgh	89.79
Spiegeleisen, 19-20%, domestic fur. spot†	30.00
Ferrosilicon, 50 per cent, freight all., c. l.	83.50
Do, less carload	88.50
Do, 75 per cent	130.00 to 150.00
Ferrochrome, 66-70 chromium, 4-6 carbon, cts. lb., con., del.	11.00
Do, for spot delivery	11.50
Ferrotungsten, stand., lb. cont.	1.10 to 1.15
Ferrovanadium, 30-40 per cent, per lb., contained, on analysis	3.15 to 3.65
Ferro-carbon-titanium carload producers' plants, net ton	160.00
Do, one-ton to c. l.	170.00
Ferrophosphorus, per ton, carload 17-19 per cent, Rockdale, Tenn., basis (18 per cent)	91.00
Ferrophosphorus, electrolytic per ton carload, 23-25% f.o.b. Anniston, Ala., 24%	122.50

†Carloads. Differentials apply to large quantities.

*To users of carloads to 500 tons annually. Differentials apply to users of larger quantities.

Fluorspar

85 and 5 per cent grade

Washed gravel Kentucky and Illinois mines, per net ton	$15.00
Washed gravel, import duty paid east, tide, gross ton	19.00 to 19.50

34 years of experience

SAVE WITH STEEL

HOT..... AND..... COLD..... ROLLED STRIP STEEL

SINCE 1897 we have specialized in the production of Hot and Cold Rolled Strip Steel.

Not only have we pioneered in this branch of the steel industry but at the beginning set a high standard of quality which has been zealously maintained throughout the great advance in the use of steel.

Sizes from 3/4" to 24" wide—for all purposes.

CAPACITY—250,000 TONS PER ANNUM.

Prompt service to both large and small users.

We also roll and sell ALLEGHENY METAL in strip form.

WEST LEECHBURG STEEL COMPANY

General Offices:
Farmers Bank Bldg., Pittsburgh, Pa.

BRANCH SALES OFFICES:

NEW YORK
HARTFORD
PHILADELPHIA
Edgcomb Steel Corp.
CHICAGO
CINCINNATI
NEWARK
Edgcomb Steel Corp.
DETROIT
TOLEDO
Dean Higgins & Co.
ST. LOUIS

WAREHOUSE STOCKS of Cold Rolled Strip Steel are carried by
EDGCOMB STEEL CO., Philadelphia—EDGCOMB STEEL CORP., Newark
JOS. T. RYERSON & SON, Chicago

Pig Iron

January Shipments Show Substantial Gain—Fifty Per Cent at Chicago—Southern Easier

PIG IRON PRICES, PAGE 98

Pittsburgh — The past week brought a slight increase in small orders for pig iron, mainly for prompt shipment. Business has improved only moderately since a month ago. Shipments are slightly heavier since early in January. Foundry operations are mildly better, with sanitary ware and radiator producers equalling or increasing their January schedules. Basic iron continues in a dull market, sales being insufficient to test prices. Quotations on other grades are not well defined due to light buying. Producers usually quote $17, valley, for No. 2 foundry, and $17.50 for bessemer and malleable.

Boston—New England foundries are operating two or three days a week, and some times shut down for a week. New sales of pig iron in the past week totaled about 1200 tons. No change in prices is noted.

New York—Pig iron sales in this district totaled 6000 tons in the past week, including an order for 1200 tons of foundry iron for the first half. A southern pump company is inquiring for 1350 tons for two plants. A Massachusetts melter is in the market for 1200 tons of malleable, and another company wants 500 tons of malleable. The General Fire Extinguisher Co., Providence, R. I., is expected in the market soon. Prices are steady.

Philadelphia—Recent buying of basic iron has subsided and the market now is quiet. Prices show little change although southern iron still is unsettled.

Buffalo—Two of the four Buffalo stacks in operation have been put on an enlarged production schedule and output by the four units now exceeds that of five average furnaces. A local melter is in the market for 1000 tons.

Youngstown, O.—Blowing in of the Lowellville, O., stack of the Sharon Steel Hoop Co., Jan. 31, brings the total of active stacks in this district to nine out of 34. No basic iron sales have been made in the open market here for many months. No. 2 foundry and basic hold nominally at $17 valley, and malleable and bessemer at $17.50.

Cleveland—A gain of 35 per cent in January shipments over December's is reported by a leading merchant furnace interest. Another notes a gain of 15 per cent in shipments from its furnaces serving the automotive industry, while at its other stacks January was on a par with December. The Cleveland producers attached to steelworks report slight improvement in January. All look forward to a higher daily average in February than last month. The market continues slow, makers with headquarters in Cleveland booking 12,000 tons in the past week, compared with 10,000 tons in the week preceding. The lake furnace price for delivery in western and southern Ohio and northern Indiana holds at $16 to $17, and for lower Michigan, outside of Detroit, $17.50. Cleveland furnaces continue to quote $17.50, base, for local delivery. The usual price on Alabama iron now is $10.50, base, or $16.51, delivered, Cleveland.

Cincinnati—Pig iron sales during the past week totaled 2200 tons, namely for spot shipments. An Indiana firm wants 500 tons of northern foundry iron, and an Ohio melter is in the market for 200 tons.

Chicago—January shipments of pig iron were about 50 per cent over December and 16 per cent larger than November's. Several orders for 1000 to 2000 tons have just been closed. A number of melters are increasing February shipping instructions, due chiefly to more active automotive demand. The base price is steady at $17.50, Chicago furnace. Occasional resales are noted under the market. The Wisconsin Steel Co. has blown in another stack, making 14 of 36 active in this district. The volume of sales of Lake Superior charcoal iron in January exceeded those of any preceding month in the past two years, except February and March, 1930, for an important maker.

St. Louis—Shipments to melters in this district in January made a favorable showing, exceeding December and comparing well with January, 1930. The melt increased last month but not to the extent indicated by the first two weeks. Prices are steady.

Birmingham, Ala.—A few sales of round tonnages in the local district are reported at $13, base, furnace, though $14 generally is the price. One furnace interest has started shipping 2500 tons to various destinations.

Toronto, Ont.—Demand for merchant pig iron continues to improve, though individual orders are small. Sales in the past week in this district totaled 1000 tons. Only three Canadian stacks are operating but it is reported the Algoma Steel Corp. Sault Ste. Marie, Ont., will blow in its No. 4 stack Feb. 10.

Ferromanganese Shipments Increasing Slightly

Ferroalloy Prices, Page 98

New York — Ferromanganese prices are steady at $85, duty paid, in carloads. The movement is almost entirely on old contracts and is picking up slightly in keeping with the trend in steelmaking operations. Spiegeleisen also is moving better, with domestic material, 19 to 21 per cent, unchanged at $30, furnace, in lots up to 100 tons. Foreign spiegeleisen, 26 to 28 per cent, is $34, duty paid, Baltimore.

Special ferroalloys are holding well to recent gains in shipments. Users are under contract, and prices are steady. Tungsten and chrome ores are easy.

Pittsburgh—Shipments of ferromanganese and spiegeleisen continue seasonally light. Practically all business applies against contracts, with the price $89.79, delivered, for small lots of ferromanganese and $30, furnace, for small orders for spiegeleisen. Demand for other ferroalloys continues at its recent quiet rate, with prices generally steady and unchanged.

First South African Manganese Ore Arrives

Iron Ore Prices, Page 98

New York—The first cargo of South African manganese ore to be shipped to this country arrived in Baltimore Jan. 30. It comprised 5000 to 6000 tons. The market on this material, 52 to 53 per cent, is 24c to 26c per unit, not including duty. Sellers of Caucasian manganese ore, 52 to 55 per cent, are quoting 26c to 28c. Brazilian, 46 to 48 per cent, is nominally 23c. Prices on Indian ore, 48 to 50 per cent, are nominal.

It is reliably reported the cargo from South Africa has been sold to the United States Steel Corp.

Krone, Sebek Die Casting & Mfg. Co., Chicago, has changed its capital from $100,000 to 200,000 shares no par value and increased directors from three to seven.

Scrap

Slight Downward Trend in Price as Buying Delays—Some Heavy Steel Moves in East

Chicago—While scrap is sentimentally weaker, the light consumer bookings fail to establish sales under the recent market. Bearish influences rule although a more conservative element is resisting lower prices at this season when ordinarily the strongest market of the year prevails. Chicago district scrap prices in 15 out of 19 years have been highest in December, January, February and March. More scrap is held by industrial producers. Favorable winter shipping conditions, plus the low rate of consumption, have developed a strong dealer selling market despite the fact that scrap is being stored for higher prices at the source when producer storage facilities are available. The list remains nominal. It is not

Iron and Steel Scrap Prices

Corrected to Tuesday noon. Gross tons delivered to consumers, except where otherwise stated.

HEAVY MELTING STEEL

Birmingham	9.50 to 11.00
Boston, dealers	6.75 to 7.00
Buffalo, No. 1	10.75 to 11.25
Buffalo, No. 2	9.25 to 9.75
Chicago	10.00 to 10.25
Cinci., deal.	9.50 to 10.00
Cleve., No. 1	10.00 to 10.50
Cleve., No. 2	9.75 to 10.00
Det., No. 1 deal.	9.50 to 10.00
Det., No. 2 deal.	7.00 to 7.50
E. Pa. del. mill	10.00 to 11.00
N. Y. del. R. R.	7.00
N. Y. deal. No. 2	5.50
N. Y., deal. yd.	5.00
Pitts., No. 1	12.50 to 13.00
St. L. No. 1 sel	10.50 to 11.00
Federal, Ill.	9.50 to 10.00
Granite C., Ill.	9.00 to 9.50
Valleys, No. 1	12.50 to 13.00

COMPRESSED SHEETS

Buffalo, dealers	9.25 to 9.75
Chicago	8.50 to 9.00
Cleveland	9.00 to 9.25
Detroit, dealers	9.50 to 10.00
E. Pa. new mat.	9.00 to 10.00
Pittsburgh	12.50 to 13.00
Valleys	12.00 to 12.50

BUNDLED SHEETS

Buffalo	7.00 to 7.50
Cinci., deal.	8.75 to 9.25
Cleveland	7.00 to 7.25
Eastern Pa.	9.00
Pittsburgh	11.00 to 11.50
St. Louis	5.50 to 6.00

SHEET CLIPPINGS LOOSE

Chicago	5.50 to 6.00
Cincinnati	5.00 to 5.50
Detroit, dealers	6.00 to 6.50
St. Louis	5.50 to 6.00

STEEL RAILS SHORT

Birmingham	12.00 to 12.50
Boston, dealers	5.50 to 6.75
Buffalo	13.75 to 14.25
Chicago (3 ft.)	12.00 to 12.50
Chicago (2 ft.)	13.00 to 13.50
Cinci., deal.	15.50 to 16.00
Detroit, deal.	12.50 to 13.00
Pitts. (open-hearth, 3 ft. and less)	14.50 to 15.00
St. Louis	13.00 to 13.50

STOVE PLATE

Birmingham	8.00 to 8.50
Boston, con.	8.00 to 8.50
Buffalo	9.50 to 10.00
Chicago, net	7.75 to 8.25
Cinci., deal. net	5.25 to 5.75
Det., net, deal.	6.25 to 6.75
Eastern Pa.	9.00 to 9.50
N. Y., deal. mill	4.75
St. Louis	8.00 to 8.50

COUPLERS, SPRING

Buffalo	13.50 to 14.00
Chicago	12.00 to 12.50
Eastern Pa.	16.50
Pittsburgh	16.00 to 16.50
St. Louis	11.00 to 11.50

ANGLE BARS—STEEL

Chicago	11.50 to 12.00
St. Louis	9.50 to 10.00

LOW PHOSPHORUS

Buff., billets and bloom crops	15.00 to 15.50
Cleveland bil. and bloom crops	16.50 to 17.00
Eastern Pa.	17.00
Pittsburgh billet bloom crops	17.50 to 18.50
Pitts. sheet bar crops	16.50 to 17.00

FROGS, SWITCHES

Chicago	10.50 to 11.00
St. Louis	10.50 to 11.00

SHOVELING STEEL

Chicago	10.00 to 10.25
Cleveland	6.50 to 7.00
St. Louis	9.50 to 10.00

RAILROAD WROUGHT

Birmingham	9.50 to 10.00
Boston, dealers	8.00 to 8.50
Buffalo, No. 1	8.50 to 9.00
Buffalo, No. 2	10.75 to 11.25
Chicago, No. 1	9.50 to 10.05
Chicago, No. 2	10.00 to 10.25
Cinci., No. 2	9.50 to 10.00
Eastern Pa.	12.50 to 13.50
N. Y., No. 1 deal.	10.00 to 10.50
Pitts., No. 2	12.50 to 13.00
St. Louis, No. 1	7.50 to 8.00
St. Louis, No. 2	9.50 to 10.00

SPECIFICATION PIPE

Boston	6.50 to 7.00
Eastern Pa.	11.50 to 12.00
N. Y., deal.	7.25 to 7.50

BUSHELING

Buffalo, No. 1	9.25 to 9.75
Chicago, No. 1	8.50 to 9.00
Cinn., No. 1 dl.	8.00 to 8.50
Cinn., No. 2	4.50 to 5.00
Cleve., No. 2	6.00 to 6.25
Det., No. 1 new deal.	8.25 to 8.75
St. L., No. 1	7.00 to 7.50
Val. new No. 1	11.50 to 12.00

MACHINE TURNINGS

Birmingham	7.00 to 8.00
Boston, dealers	2.00 to 2.50
Buffalo	5.75 to 6.25
Chicago	4.25 to 4.75
Cinn., deal.	4.50 to 5.00
Cleveland	4.75 to 5.25
Detroit	4.50 to 5.00
Eastern Pa.	7.00 to 7.50
N. Y., deal.	3.00
Pittsburgh	6.00 to 6.50
St. Louis	4.00 to 4.50
Valleys	6.00 to 6.50

BORINGS AND TURNINGS For Blast Furnace Use

Boston	2.00 to 2.60
Buffalo	6.25 to 6.75
Cinn., deal.	4.50 to 5.00
Cleveland	6.50 to 7.00
Detroit, deal.	5.50 to 6.00
Eastern Pa.	6.00 to 7.00
N. Y., deal.	3.00
Pittsburgh	7.50 to 8.00

CAST IRON BORINGS

Birming., chem.	12.50 to 13.00
Birming., plain	7.00 to 8.00
Boston, chem.	9.10 to 9.60
Boston, deal.	2.00 to 2.50
Buffalo	6.25 to 6.75
Chicago	5.00 to 5.50
Cinn., deal.	4.50 to 5.00
Cleveland	6.50 to 7.00
Detroit, deal.	5.25 to 5.75
Eastern Pa.	7.00 to 7.50
E. Pa., chem.	13.50 to 14.50
N. Y., deal.	3.50
Pittsburgh	7.75 to 8.25
St. Louis	6.50 to 7.00

PIPE AND FLUES

Cinn., deal.	7.50 to 8.00

RAILROAD GRATE BARS

Buffalo	7.25 to 7.75
Chicago, net	8.00 to 8.50
Cincinnati	7.00 to 7.50
Eastern Pa.	9.00 to 9.50
N. Y., deal.	6.00
St. Louis	7.50 to 8.00

FORGE FLASHINGS

Boston, deal.	6.00 to 6.25
Buffalo	9.00 to 9.50
Cleve. ov. 10 in.	8.00 to 8.50
Detroit	8.00 to 8.50

FORGE SCRAP

Boston, del.	5.50 to 6.00
Chicago	13.50 to 14.00
Eastern Pa.	11.00

ARCH BARS, TRANSOMS

Chicago, net	11.50 to 12.00
St. Louis	11.50 to 12.00

AXLE TURNINGS

Boston, deal.	6.75 to 7.00
Buffalo	10.50 to 11.00
Chi., steelworks	9.00 to 9.50
Cleveland	8.00 to 8.50
Eastern Pa.	11.00
Pittsburgh	10.50 to 11.00
St. Louis	7.50 to 8.00

STEEL CAR AXLES

Birmingham	14.00 to 14.50
Boston, ship. pt.	14.00 to 15.00
Buffalo	15.50 to 16.00
Chicago	14.60 to 15.10
Eastern Pa.	18.50 to 19.50
St. Louis	14.50 to 15.00

SHAFTING

Bos., ship. pt.	13.00 to 13.50
Chicago	12.90 to 13.45
N. Y., deal.	13.00 to 14.00
St. Louis	12.00 to 12.50
E. Penna.	18.00

CAR WHEELS

Birming., iron	10.00 to 11.00
Boston, iron	14.00 to 14.50
Buffalo, iron	13.00 to 13.50
Buffalo, steel	13.50 to 14.00
Chicago, iron	10.75 to 11.25
Chi., roll steel	13.50 to 14.00
Cincinnati, iron	10.50 to 11.00
E. Pa. steel	15.50 to 16.00
E. Pa. iron	13.50 to 14.00
Pitts., iron	13.50 to 14.00
Pitts., steel	16.00 to 16.50
St. Louis iron	10.50 to 11.00
St. Louis, steel	13.00 to 13.50

NO. 1 CAST SCRAP

Birming., cup.	9.50 to 10.00
Buffalo (mach.)	10.50 to 10.75
Boston, textile	11.50 to 12.00
Chicago, mach.	10.65 to 11.20
Chi., railroad	10.10 to 10.65
Chicago, agri.	9.50 to 10.10
Cinn., mach. cup., gross	13.50 to 14.50
Cleve. cupola	12.00 to 12.50
Det., net deal.	8.50 to 9.00
E. Pa. cupola	13.00
N. Y. cup. deal.	8.00 to 8.50
N. Y., del. local foundries	12.00
Pitts., cupola	12.50 to 13.00
San Fran., del.	13.50 to 14.00
Seattle	8.50 to 9.00
St. L. No. 1 ma.	9.75 to 10.25
St. L. No. 1	9.00 to 9.50

HEAVY CAST

Boston	10.50 to 11.00
Bos. mach. cast.	11.50 to 12.50
Buffalo, break	7.00 to 7.50
Cleve., break	6.50 to 7.00
Detroit, auto, net deal.	10.50 to 11.00
Det., break., dl.	6.50 to 7.00
Eastern Pa.	11.00
N. Y. No. 1 dl.	8.00 to 8.50
N. Y. break. dl.	7.00 to 7.50
Pittsburgh	10.50 to 11.00

MALLEABLE

Boston R. R.	13.00 to 13.50
Buffalo	12.00 to 12.50
Chicago, agri.	11.00 to 11.50
Chicago, R. R.	12.25 to 12.75
Cinn., R. R. dl.	12.00 to 12.50
Cinn., agri., dl.	12.00 to 12.50
Cleve., rail	12.00 to 12.50
Det. auto deal.	11.00 to 11.50
St. Louis, rail	10.50 to 11.00

RAILS FOR ROLLING 5 feet and over

Birmingham	11.25 to 11.50
Boston	8.50 to 9.00
Buffalo	10.25 to 10.75
Chicago	12.50 to 13.00
Eastern Pa.	13.00 to 13.50
New York	9.00 to 9.50
St. Louis	11.25 to 11.75

LOCOMOTIVE TIRES

Chicago, cut	13.00 to 13.50
St. L. No. 1	11.00 to 11.50

LOW PHOS. PUNCHINGS

Chicago	11.50 to 12.00
Buffalo	14.00 to 14.50
Eastern Pa.	15.50 to 16.50
Pittsburgh	15.00 to 15.50

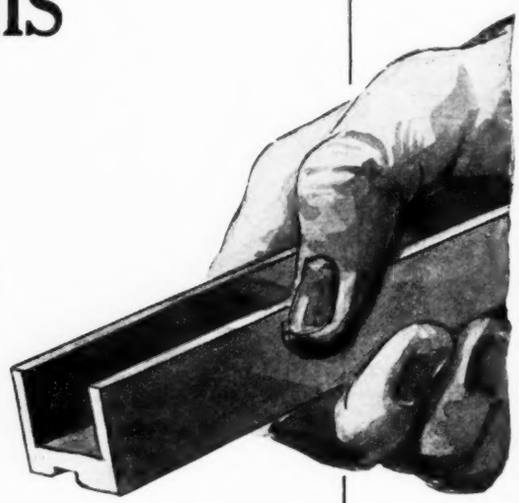
Moltrup

COLD DRAWN STEEL

of
Carbon, Nickel
Chrome Nickel,
Chrome Vanadium
or
ANY S. A. E. ALLOY

For additional information send for this catalog.

Why buy THIS



—if THIS is what you need?

Right There Lies One Unsuspected Cause of Too High Machining Costs.

Branch offices

Cal., San Francisco—J. J. Brady, 650 Howard St.; Ga., Atlanta—C. W. Moore, 991 Blue Ridge Ave.; Ill., Chicago—Central Steel & Wire Co., 4545 S. Western Blvd.; Mass., Boston—Adams & Osgood Steel Co., Inc., 23-25 Purchase St.; Mich., Detroit—Central Steel & Wire Co., 5001 Bellevue Ave.; N. Y., Buffalo—N. D. Tilbury, 307 White Bldg.; New York—Moltrup Steel Products Co., 3314 Chrysler Bldg.; Ohio, Cleveland—Moltrup Steel Products Co., 508 B. F. Keith Bldg.; Dayton—Central Steel & Wire Co., East Monument Ave., extended; Pa., Philadelphia—Moltrup Steel Products Co., 617 Widener Bldg.; Pittsburgh—McKee Oliver Inc., 1326 W. Carson St.; Va., Norfolk—R. E. Murray & Co., Natl. Bank of Commerce Bldg.; Wash., Seattle—M. M. Mossman, 2712 4th Ave., South; Texas, Houston—W. P. Cunningham, 910 Rice Street.

MOLTRUP STEEL PRODUCTS CO.

BEAVER FALLS, PA.

expected that further important buying of melting steel will take place this month unless steelworks operating schedules get above 50 per cent. Bids on current railroad offerings of melting steel are around $10, gross delivered.

Boston—The easier situation at Pittsburgh was reflected in the local market during the past week. Some long bundled skeleton continues to move in carlots to the American Steel & Wire Co. plant at Worcester. Prices are steady.

New York—Dealers' buying prices are unchanged with some easiness in No. 1 railroad steel. Mills are taking little scrap, in some instances buying material from week to week. Stocks with one exception, are not large. Heavy melting steel continues at $10.50, delivered, eastern Pennsylvania. Cast scrap supplies are light.

Philadelphia—Buying of heavy melting steel is the feature of the present steel and iron scrap market. A Coatesville, Pa., melter has taken 5000 tons at $11, delivered, and a Claymont, Del., consumer has taken 2000 tons at $10.75, delivered. The latter user only recently lifted its ban on shipments on contract. A Bethlehem, Pa., consumer has bought 1000 tons of the railroad grade at $10, in addition to 3000 tons placed recently. Prices are unchanged. A Florence, N. J., consumer has bought a fair tonnage of heavy breakable cast at $11, delivered. Other grades show little movement.

Pittsburgh—Steel and iron scrap is quiet, awaiting awards of railroad lists. Mills show no interest in buying, in view of continued light operations. With dealers offering $12.50 for heavy melting steel $13 appears the top and this grade is quotable 25 cents lower. Activity in most grades is light, with prices unchanged.

Buffalo — Effective immediately Bethlehem Steel Co. has inaugurated the policy at its Lackawanna plant of buying scrap only from dealers, brokers being eliminated. This is in accordance with policy in other districts. Three Buffalo dealers will supply scrap, among others in the general district. Continued inactivity in scrap has again led dealers to reduce fractionally their offers for some material. Nominal prices prevail and no new buying is in sight.

Cleveland—Steel and iron scrap continues weak and inactive. Steelworks are still holding up shipments against orders. No new commitments have been placed since early this year. Gain in foundry consumption in this district has been slight. Dealers and brokers report material plentiful. Quotations here and in the valleys are unchanged. Holdups in the valleys accentuate the weak situation here. One valley mill, however, is expected to take in some scrap later this week.

Detroit—Market in iron and steel scrap is unwarrantedly stronger in compressed sheets, the going figure being up 25 cents a ton to a spread of $9.50 to $10. Machine shop turnings and short shoveling turnings are higher again at $4.50 to $5 and $5.75 to $6.25, respectively.

Cincinnati—The iron and steel scrap market is without feature, sentiment holding stronger as a reflection of recent sales of iron borings and better releases on old orders. Dealers' quotations are unchanged.

St. Louis—Under pressure of liberal railroad offerings, steel and iron scrap prices, steady for more than a month, have yielded slightly on some items. Trading is light, however, and no tonnages of note have changed hands as a result of the minor reductions.

Birmingham, Ala.—Some activity, not sufficient to indicate a trend, is noticeable. Supplies are ample for some time and prices are unchanged, with concessions rumored.

Toronto, Ont.—While there is little change in steel and iron scrap markets, business appears to be picking up slowly. Demand for steel scrap is dull, but iron grades are moving more freely. Consumers are running on a hand-to-mouth basis and are placing frequent orders for small lots. Much of the call of late has been for machinery cast, with stove plate and malleable scrap and most other lines experiencing spotty demand. Prices are unchanged.

Canadian Scrap

Dealers' Buying Prices

MONTREAL

Per Gross Ton

Iron axles	$11.00
Steel axles	10.00
Car wheels	8.00
Stove plate	8.00
Wrought pipe	2.00
Turnings	2.00
Heavy melting steel	6.00

TORONTO

Steel axles	7.00
Iron axles	7.00
Heavy melting steel	7.00
Turnings	2.00
No. 1 mach. cast (net)	9.00
Malleable (net)	7.00

Coke

Foundries Increasing Fuel Consumption in Some Districts—Furnace Grade in Dull Market

COKE PRICES, PAGE 98

Pittsburgh—Beehive coke demand is steady and slightly heavier than a month ago. The furnace grade still is dull, while foundry coke consumption has improved in some centers. Industrial heating coke continues slow, but prepared domestic sizes are moving fairly well. Prices are unchanged.

Beehive coke production in the Connellsville district during the week ending Jan. 24 was 20,350 tons, against 20,450 tons the preceding week, and 29,720 tons the corresponding week of last year, according to the *Connellsville Courier*.

Boston—Contracts are more than sufficient to cover consumers' needs and the market is dull. In some instances shipments are being deferred. Demand for domestic coke is good.

New York—With little change in the foundry melt the coke movement in this district continues light. Beehive foundry is $3.50 to $3.75, Connellsville, Pa., for the standard grades, and $4.70 to $4.85, Latrobe, Pa., for premium brands. Beehive furnace coke continues $2.50 to $2.60 Conellsville, with the lower figure the more representative. By-product foundry coke is $9 to $9.40, Newark, N. J.; $11, New England; and $9, Philadelphia.

Cincinnati—Specifications for by-product foundry coke are slightly better than in December. Quotations are unchanged at $9, delivered Cincinnati.

St. Louis—Shipments in January were considerably larger than in December, but smaller than in January, 1930. Specifications indicate the total for February will exceed that of last month. New sales are limited to small amounts for prompt delivery.

Birmingham, Ala.—Coke production has been increased, mainly to meet local requirements. Prices are unchanged.

Pacific Coast

Ford Motor Co. Lets 3300 Tons for Seattle Assembly Plant—Buying Is Light, with Fair Tonnages in Prospect—Pipe Buying Fails to Keep Up to Average Rate—Prices Steady

Seattle—Steel awards in the Pacific Northwest approximated 7000 tons this week but the greatest interest centered in 3300 tons of structural shapes for the Seattle Ford assembly plant. General contract was given the Clinton Construction Co., San Francisco. It is reported here, although not confirmed, that the structural award was placed with the Bethlehem Steel Co. direct. Work is to begin here at once and includes in addition to the main plant, railroad trackage, dredging and construction of a deep water pier.

Franchise to construct a $1,000,000 water system in the territory between Seattle and Everett, a large suburban area, has been granted to Ulen & Co., New York. It is planned to undertake this development shortly.

Bars, Plates and Shapes

Mill prices are unchanged with reinforcing steel at 2.30c, merchant bars and shapes 2.20c to 2.25c and plates 2.10c up.

Coast Pig Iron Prices

Utah basic	$22.00 to 24.00
Utah foundry	22.00 to 24.00
*German	24.25
*Indian	22.00 to 24.00

*C.i.f. duty paid.

While some important construction involving concrete bars is contemplated, business pending is of small proportions and no awards of 100 tons or more were announced this week. Both local mills have sufficient orders booked to maintain present operations for some time. Schuler & McDonald, Oakland, Calif., are low bidders for the substructure of the Seattle federal building requiring 200 tons of concrete bars and 100 tons of sheet steel piling. Seattle opens bids this week for a viaduct calling for 100 tons of steel.

Vancouver Engineering Works Ltd., Vancouver, B. C., has been awarded the contract at $153,107 to furnish about 2500 tons of 20 to 36-inch electric welded steel water pipe by the Vancouver water board. Commercial Boiler Works has the contract to construct three 2000-barrel tanks, a total of 50 tons, for the Seattle Port commission. Plate and shapes tonnage involved in the steel hull L. P. Hoskins, building at Portland, Oreg., awarded to the Barde Steel Co., is said to be 400 tons, not 100 as reported last week.

Aside from the Ford plant contract, two other structural projects were awarded this week. Wallace Bridge & Structural Steel Co., Seattle, will fabricate 630 tons for the Tacoma telephone building while Poole & McGonigle, Portland, will furnish 160 tons for the Hawthorne bridge, Portland. In both instances materials will be supplied by Bethlehem Steel Co. Five of the largest Tainter type gates ever manufactured on the Pacific coast are under construction at the plant of the Willamette Iron & Steel Works, Portland, for the Ariel dam in Washington. They are 39 feet wide and 31 feet high. In addition to 1200 tons of shapes pending for the Rock Island hydroelectric project, about 6000 tons will be required in jobs contemplated at Portland, as follows: Commonwealth building, 3100 tons; Lloyd hotel, 2000 tons; federal building, 700 tons.

Finished Materials

While the turnover of warehouse stocks continues slow and in small volume, jobbing sentiment is better as new projects involving considerable steel develop. Prices are unchanged and are being well supported.

Pipe Awards Are Light

No awards of importance were let this week but several projects are pending, involving about 1000 tons of cast iron for Tacoma, Puyallup and Aberdeen. Jobs calling for about 2500 tons at Seattle and Vancouver, B. C., are to be up for figures soon.

California Is Active

San Francisco—(*By Air Mail*)—Activity in Pacific Coast iron and steel markets is more pronounced and some moderate lots have been placed, including 600 tons for two bridges for the Western Pacific Co., San Francisco, placed with the Columbia Steel Co. The Ford Motor Co. has just awarded the general contract for its new Seattle plant to the Clinton Construction Co., San Francisco. Prices are holding fairly firm to levels established last year.

Bars, Shapes and Plates

Reinforcing steel bar awards aggregated 1486 tons and brought the total for the year to 4500 tons as compared with 3142 tons for the first month in 1930. The Pacific Coast Steel Corp. took 300 tons for the foundations of the War Memorial building in San Francisco. W. C. Hauck & Co. booked 136 tons for a building for Santa Clara county. Unknown companies were awarded 250 tons for a store at 541 South Broadway and 200 tons for an apartment on Beverly boulevard, Los Angeles. Bids have been opened on two Oakland projects, calling for 200 tons for the Webster street pier and 203 tons for a high school. Bids will be opened Feb. 18 on 240 tons for highway work in San Joaquin county, Calif.

California Steel Products Co. has booked 100 tons for small tanks for the Associated Oil Co., San Francisco, and Lacy Mfg. Co. took 605 tons for a 42 to 48-inch riveted steel pipe line for Los Angeles. The only important pending project involves 1300 tons for a pipe line at Chelan, Wash., an award on which is expected to be made shortly. Prices range from 2.05c to 2.15c, c.i.f.

Awards of structural shapes were the largest of any week this year. Among the larger lots were 550 tons for a store in Los Angeles, 270 tons for a hospital in San Francisco and 325 tons for a shop building at the naval base, San Diego, all placed with McClintic-Marshall Co. The Judson-Pacific Co. took 240 tons for a bridge at Felton, Calif., and 145 tons for the Seventh street crossing in Oakland. Bids have been opened on 480 tons for a high school in Oakland. Plain shapes range from 2.15c to 2.25c, c.i.f. Low prices have been quoted recently on foreign material and 1.50c, c.i.f., duty paid, is general.

Other Finished Material

The only cast iron pipe award of importance involved 184 tons for San Bernardino, Calif., placed with the American Cast Iron Pipe Co. Awards so far this year total 6530 tons, compared with 7155 tons for the same period a year ago. Bids have been opened on 100 tons for the improvement of Beacon Hill, Seattle. The only new inquiry of importance involves 2270 tons for Los Angeles, bids on which will be opened Feb. 10.

Southern Pacific Co., San Francisco, has opened bids on 1400 tons of track spikes.

Steel, Wrought and Cast Iron Pipe, and Tubing

Welded Iron, Steel Pipe

Base Price $200 Ton

Base Discounts on steel pipe, Pittsburgh and Lorain, O., to jobbers in carloads. Indiana Harbor, Ind., and Evanston, Ill., 2 points less. Chicago del., 2½ points less. Wrought iron pipe, Pittsburgh base.

BUTT WELD

Steel In.	Blk.	Gal.	Iron In.	Blk	Gal.
⅛	58	44½	⅛	23	5
¼	62	50½	¾	28	11
1—3	64	52½	1 and 1¼	31	15
			1½ and 2	35	18

LAP WELD

2	57	45½	2	23	9
2½—6	61	49½	2½—3½	28	13
7—8	58	45½	4—6	30	17
9—10	56	43½	7 and 8	29	16
11—12	55	42½	9—12	26	11

BUTT WELD

Extra strong, plain ends

⅛	55	44½	¼ & ⅜	+13	+48
¾	60	49½	½	23	7
1—1½	62	51½	¾	28	12
2—3	63	52½	1—2	34	18

LAP WELD

Extra strong, plain ends

2	55	44½	2	29	13
2½—4	59	48½	2½—4	34	20
4½—6	58	47½	4½—6	33	19
7—8	54	41½	7 and 8	31	17
9—10	47	34½	9—12	21	8
11—12	46	33½			

To large jobbers these discounts on steel pipe increased on black by 1 point and two discounts of 5 per cent; on galvanized by 1½ points with two 5 per cents. On iron pipe large jobbers obtain additional discount of 1 point with 5 and 2½ per cent on black and galvanized.

BOILER TUBES

Carload Discounts, Lap Welded Steel		f.o.b. Pittsburgh Charcoal Iron	
2—2¼	38	1¾	8
2½—2¾	46	2—2¼	13
3	52	2½—2¾	16
3¼—3¾	54	3	17
4	57	3¼—3½	18
4½—6	46	4	20
1½	1	4½	21

On lots of a carload or more, above base discounts subject to preferential of two 5 per cent discounts on steel and 10 per cent on charcoal iron. Smaller quantities subject to following modifications from base discounts.

Lap Welded Steel—Under 10,000 pounds, 6 points under base and one 5 per cent; on 10,000 pounds to carload, 4 points under base and one 5 per cent; on 10,000 pounds to carload, 4 points under base and two 5 per cents. Charcoal Iron—under 10,000 pounds, 2 points under base; on 10,000 pounds to carload, base and one 5 per cent.

STANDARD COMMERCIAL SEAMLESS BOILER TUBES

COLD DRAWN

1	61	3	46
1¼—1½	53	3¼—3½	48
1¾	37	4	51
2—2¼	32	4½, 5, 6	40
2½—2¾	40		

HOT ROLLED

2—2¼	38	3¼—3½	54
2½—2¾	46	4	57
3	52	4½, 5, 6	46

Subject to 5 per cent supplementary discount for carload lots. On less than 10,000 pounds, base discount reduced 6 points. On 10,000 pounds to carload, base discount reduced 4 points and one 5 per cent allowed. No extra for lengths up to and including 24 feet. Sizes smaller than 1 inch and lighter than standard gage to be held at mechanical tubes list and discount. Intermediate sizes and gages not listed take price of next larger outside diameter and heavier gage.

Seamless Tubing

Cold drawn; f.o.b. mill

Random lengths over 5 ft. 55%
Selected lengths, 1 to 18 ft. 53%

Cast Iron Water Pipe

Class B Pipe—Per Net Ton

Six-inch and over, Bir.....$37.00 to 38.00
Four-inch, Birmingham..... 41.00 to 42.00
Four-inch, Chicago ..... 49.20 to 50.20
Six to 24-inch, Chicago..... 45.20 to 46.20
Six-inch and over, N. Y..... 37.50 to 39.50
Four-inch, New York..... 40.50 to 41.50
Stand. fittings, Bir. base.... $100.00

Six to 24-inch, base; over 24-inch plus $20; 4-inch, plus $10; 3-inch, plus $20; gas pipe fittings, $5 higher. Class A pipe $4 higher than Class B.

Warehouse Quotations at Leading Centers, in Cents Per Pound

STEEL BARS

Baltimore	3.00c
Boston	3.265c
Buffalo	3.15c
Chattanooga	3.10c
Chicago	2.90c
Cincinnati	3.15c
Cleveland	2.85c
Detroit	3.00c
Houston	3.00c
Los Ang.	3.40c
New York‡(d)	3.10c
Philadelphia	2.60c
Pittsburgh	2.75c
Portland	3.15c
San Frans.	3.40c
Seattle	3.15c
St. Louis	3.15c
St. Paul	3.00c
Tulsa	3.65c

IRON BARS

Baltimore	3.25c
Boston	3.265c
Buffalo	3.15c
Chattanooga	3.10c
Chicago	3.00c
Cincinnati	3.15c
Detroit	3.00c
New York‡(d)	3.10c
Philadelphia	2.60c
St. Louis	3.15c
Tulsa	3.65c

REINFORC. BARS

Baltimore	2.50c-3.31c
Boston	3.265c
Buffalo	2.95c
Chattanooga	3.10c
Cincinnati	3.15c
Cleveland	2.25c-2.44c
Detroit	3.00c
Houston	3.00c
Los Ang. cl.	2.40c
Los Ang. lcl.	2.70c
New York	2.65c-3.10c
Phila.	2.40c-3.00c
Pittsburgh	2.75c
San Fran. cl.	2.30c
San Fran. lcl.	2.60c
Seattle	3.15c
St. Louis	3.15c
Tulsa	3.65c
Young.	2.30c-2.60c

SHAPES

Baltimore	3.00c
Boston	3.365c
Buffalo	3.25c
Chattanooga	3.20c
Chicago	3.00c
Cincinnati	3.25c
Cleveland	2.95c
Detroit	3.10c
Houston	3.25c
Los Ang.	3.40c
New York(d)	3.10c
Philadelphia	2.50c
Pittsburgh	2.85c
Portland	3.15c
San Fran.	3.40c
Seattle	3.15c
St. Louis	3.25c
St. Paul	3.10c
Tulsa	3.75c

PLATES

Baltimore	3.00c
Boston	3.365c
Buffalo	3.25c
Chattanooga	3.20c
Chicago	3.00c
Cincinnati	3.25c
Cleveland, ¼-in. and thicker	2.95c
Clev., 3/16-in.	3.20c
Detroit	3.10c
Det., 3/16-in.	3.10c
Houston	3.00c
Los Angeles	3.40c
New York(d)	3.30c
Philadelphia	2.50c
Phila. floor	5.10c
Pittsburgh	2.85c
Portland	3.15c
San Fran.	3.40c
Seattle	3.15c
St. Louis	3.25c
St. Paul	3.10c
Tulsa	2.75c

NO. 10 BLUE

Baltimore	3.50c
Bost. 3/16-in.	9.915c
Buffalo	3.50c
Chattanooga	3.60c
Chicago	3.35c
Cincinnati	3.45c
Cleveland	3.10c
Detroit	3.35c
Houston	3.90c
Los Ang.	3.95c
N. Y. (d)	3.00c-3.40c
Portland	4.00c
Phila.*†	3.05c
Pitts.**	2.75c
San Fran.	3.80c
Seattle	4.00c
St. Louis	3.45c
St. Paul	3.40c
Tulsa	3.95c

NO. 24 BLACK

Balt.*†	3.50c
Boston	4.70c
Buffalo	4.20c
Chicago	3.80c
Cincinnati	4.05c
Clev.***	3.75c
Detroit	3.75c
Los Ang.	4.70c
New York	3.50c-3.65c
Phila.*†	3.60c
Pitts.**	3.40c
Portland	4.50c
San Fran.	4.35c
Seattle	4.50c
St. Louis	4.05c
St. Paul	3.545c
Tulsa	4.10c

NO. 24 GAL. SHEETS

Balt.*†	4.00c
Boston	5.45c
Buffalo	4.40c-4.60c
Chicago (local del.)	4.35c
Chicago (outside)	4.35c-4.60c
Cincinnati	4.90c
Cleveland***	4.35c
Detroit	4.25c
Houston	5.40c
Los Ang.	5.10c
New York	4.00c-4.10c
Phila.*†	4.15c
Pitts.**	4.00c
Portland	5.00c
San Fran.	5.00c
Seattle	5.00c
St. Louis	4.60c
St. Paul	4.23c
Tulsa	4.60c-4.75c

BANDS

Baltimore	3.50c
Boston	4.015c-5.00c
Buffalo	3.50c
Chattanooga	3.30c
Chicago	3.10c
Cincinnati	3.35c
Cleveland	3.10c
Det. 3/16-in. & lighter	3.30c
Houston	3.65c
Los Ang.	4.30c
New York(d)	3.40c
Philadelphia	2.90c
Pittsburgh	3.10c
Portland	3.50c
San Fran.	3.75c
Seattle	4.15c
St. Paul	3.75c
Tulsa	3.85c

HOOPS

Baltimore	3.50c
Boston	5.50c-6.00c
Buffalo	3.90c
Chicago	3.65c
Cincinnati	3.90c
Cleveland	3.65c
Det. No. 14 & lighter	3.80c
New York	3.75c
Philadelphia	3.15c
Pittsburgh	4.10c
Seattle	5.15c
St. Paul	3.70c

COLD FIN. STEEL

Rounds & Hexagons

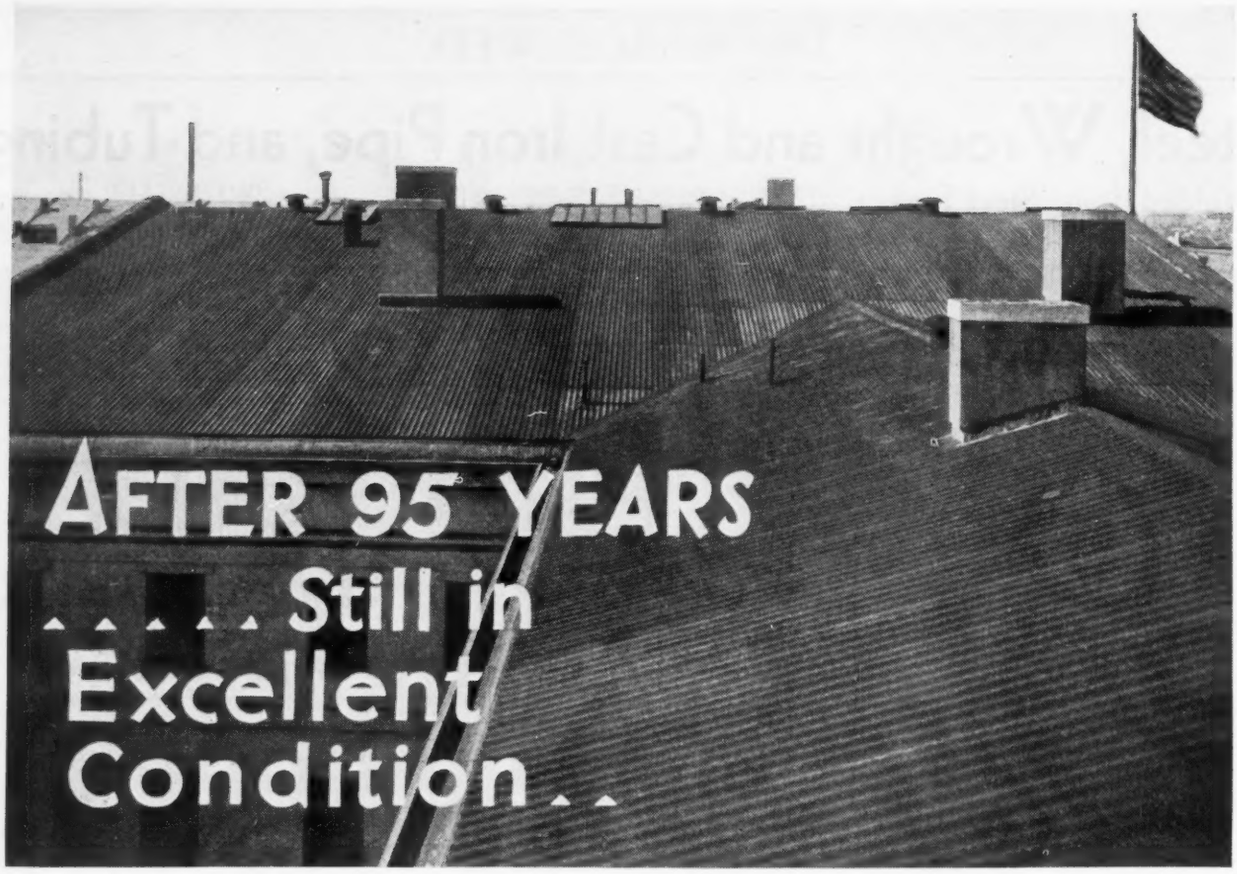
Baltimore (c)	3.30c
Boston	3.50c
Buffalo	3.15c
Chattanooga*	3.85c
Chicago	3.35c
Cincinnati	3.80c
Cleveland	3.40c
Detroit	3.65c
Los Ang. (a)	4.50c
New York	3.50c
Philadelphia*	3.40c
Pittsburgh	3.35c
Portland (a)	4.50c
San Fran.(a)	4.25c
Seattle (a)	4.75c
St. Paul (a)	3.85c
St. Louis	3.60c
Tulsa	4.75c

Flats and squares 5c extra, except Tulsa, where 5.14c is quoted. (a) Rounds, hex. only.

COLD ROLL. STRIP

Boston 0.100 in., 500 lb. lots	5.30c
Buffalo	5.65c
Chicago (soft) (b)	6.15c
Cincinnati	6.10c
Clev. (b)	5.95c
Detroit	5.40c
Phila. (c)	4.85c
New York	5.05c

(b) Net base straightening, cutting, boxing 1 ton or more.
(c) Plus mill, size and quantity extras.
(d) Minus quant. diff.
‡Domestic bars.
*Plus quantity extras.
**Less than 25 sheets.
*†50 or more bundles.
***Less 0.15c where more than 10 bundles are ordered at once for delivery at one time.



AFTER 95 YEARS ..... Still in Excellent Condition..

The United States Mint in New Orleans was built in the old Creole days on the site of old Fort San Carlos, from whose parapet General Andrew Jackson reviewed an army of the New Republic.

This old fortress was dismantled and the mint was erected in 1835.

Mr. Leonard Magruder, assayer in charge of the mint since 1881, writes as follows:

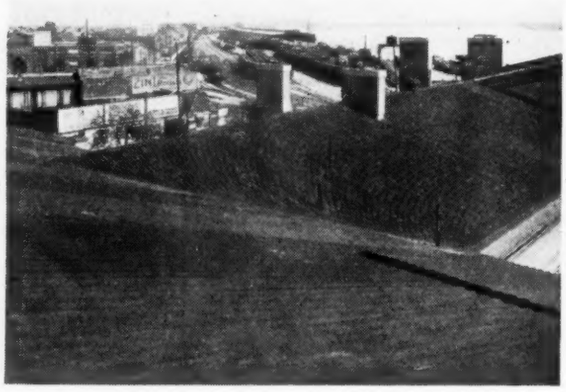
> "The roof was of 20 gauge corrugated galvanized wrought iron sheets and has never been replaced; of course it has been repaired, but not on account of corrosion or rust but due rather to where it had blown off. Will state that the roof has been painted on an average of every fifteen years."

The ventilators noticeable in the above picture are part of the original equipment but are made from uncoated black wrought iron sheets.

The conditions to which the roof has been exposed would not be considered favorable for any sheet metal. The mint is located near the Mississippi River, is exposed to heat, to fog, and mist; is smudged with smoke from steam boats and is blackened by soot and fumes from the numerous trains in the neighboring railroad yards.

For more than 95 years this genuine wrought iron roof has proven its uniform quality by real measurement of value—*Satisfactory results.*

(1) Close up of the old roof on the United States Mint at New Orleans, La. (2) Background shows how the old roof is constantly subjected to smoke fumes from passing boats and from adjacent freight yards.



(3) Exterior view of the mint.

AND NOW—

GENUINE WROUGHT IRON

sheet metal

Sharon's latest product gives you the same resistance against corrosion and long wearing qualities at a cost comparing favorably with that of less durable substitutes. This development marks a new epoch in the sheet metal industry.

Your request for further information will be given prompt attention.

SHARON STEEL HOOP COMPANY
SHARON, PA.

Mill Products

Base price cents per pound f.o.b. mill, except otherwise specified. Copper and brass product prices based on 9.75c, Conn., for copper

Sheets	
Yellow brass (high)	16.87½
Copper, hot rolled	19.50
Lead, full sheets (cut ½c more)	8.75
Zinc sheet (100-lb. base)	9.50
Tubes and Pipes	
Seamless yellow brass (high)	21.75
Seamless copper	21.87½
Rods	
Yellow brass (high, full turnings)	15.12½
Naval brass	16.12½
Anodes	
Copper, untrimmed	17.00
Wire	
Yellow brass (high)	17.37½

Old Metals

Dealers' buying prices, cents lb.

Heavy Red Brass	
New York	6.75 to 7.00
Chicago	6.25 to 6.50
Cleveland	7.00 to 7.50
St. Louis	6.75 to 7.00
Heavy Yellow Brass	
New York	4.50 to 4.75
Heavy Copper and Wire	
New York	7.50 to 7.75
Boston	7.00 to 7.25
Chicago	7.25 to 7.75
Cleveland	7.00 to 7.50
St. Louis	6.50 to 7.00
Red Brass Borings	
New York	6.25 to 6.75
Yellow Brass Tubing	
Cleveland	4.00 to 4.50
Light Copper	
New York	6.75 to 7.00
Chicago	6.00 to 6.50
Cleveland	6.50 to 6.75
St. Louis	6.50
Light Brass	
Boston	3.25 to 3.50
Chicago	4.25 to 4.50
Cleveland	3.00 to 3.25
St. Louis	3.75 to 4.00
Zinc	
New York	2.00
Cleveland	1.25 to 1.50
St. Louis	2.00
Aluminum	
Clippings, soft, Cleveland	10.50 to 12.00
Clippings, hard, Cleveland	8.00 to 9.00
Borings, Cleveland	4.25 to 4.75
Mixed cast, Cleveland	5.00 to 5.50
Mixed cast, Boston	4.00 to 4.50
Mixed cast, St. Louis	4.25

Secondary Metals

Remelt aluminum No. 12	11.50 to 12.50
Brass ingots, 85-5-5-5	9.75

Quicksilver Is Quiet

New York—Quicksilver is quiet and steady around $105 a flask for small spot lots.

Metals

Copper, Tin, and Lead Prices Are Cut as Demand Continues Light—Zinc Tone Is Firmer

New York—While copper, tin and lead prices have dropped during the past week, zinc has advanced. Business in all metals is still light.

Brass and copper products have been cut ¼-cent in line with the reduction in new copper. January specifications for mill shipments were much larger than in December but showed little change over those of last autumn. A few of the alloys high in copper are unchanged or cut only ⅛-cent. Brass ingot and scrap prices have been reduced about ¼-cent, but yellow brass ingot is down only ⅛-cent.

Copper—After several days of reports of metal in the outside market at 9.75c, Connecticut, custom smelters cut their price to this basis last week. For a week or so, they had sold almost nothing in the domestic market at 10.00c. Reports in the outside market were exaggerated as to the quantity of metal available, but this point made no difference in the actual trend and both domestic and export demand disappeared. The export price was cut to 10.05c, c.i.f. European ports. With business at the new prices light and a little metal offered in the outside market at ⅛-cent lower, there has been some belief in the market that custom smelters may cut further. On the other hand, it is asserted that not much metal is offered by the custom smelters and it would not take a large increase in buying to balance their position.

Zinc—After firming up about a week ago, the prime western market has gone up five additional points in the past few days. The first tendency to go above 4.00c was partly due to the reluctance of mining companies to sell much ore at $26 a ton. The latest rise in metal is due to the increase in the price of ore to $27 a ton, the first change since last October. Demand for metal continues light but some business has been done at premiums.

Tin—Lack of business with continued liberal supplies has depressed the price in the past week. Nothing new has been reported concerning the plan to limit exports from the principal producing countries, but it still is believed that the plan will go into effect within the next few months. January statistics, as expected, were weak. World's visible supply increased 1121 tons to a total of 43,619 tons.

Lead—New business is light and prices have been cut about 15 points. London prices have been easy.

Aluminum—New business is quiet and prices are unchanged. Remelt aluminum is a little steadier.

Coke By-Products Demand Light; Sulphate Firmer

New York—Demand for coke oven by-products is light, with some shading reported. Sales of benzol at 19.00c, works, have been reported. Industrial demand is slack. Naphthalene also is reported easy on attractive spot business. Shipments on contracts continue in good volume. Xylol and solvent naphtha trading is steady. Phenol is inactive, with 16.00c reported done. Sulphate of ammonia is unchanged in demand, but firmer in price. Output is light.

Coke By-Products

Per Gallon, Producers' Plants, Tank Lots

	Spot
Pure benzol	$0.20
90 per cent benzol	0.20
Toluol	0.30
Solvent naphtha	0.25
Commercial xylol	0.25
Per Pound at Producers' Plants in 250-Pound Drums	
Phenol	0.16 to 0.17
Per Pound at Producers' Plants	
Naphthalene flakes	3.75 to 4.75
Naphthalene balls	4.75 to 5.75
Per 100 Pounds Delivered	
Sulphate of ammonia	$2.00 to $2.05

Prices of the Week, Cents a Pound

	Copper—Electro delivered	Copper—Lake delivered	Copper—Casting refinery	Straits Tin New York Spot	Straits Tin New York Futures	Lead N. Y.	Lead East St. L.	Zinc St. L.	Aluminum 98-99%	Antimony Spot	Nickel Ingot
Jan. 28	10.00	10.12½	9.62½	25.75	26.05	4.75	4.55	4.05	22.90	7.05	35.00
Jan. 29	10.00	10.12½	9.62½	25.40	25.65	4.75	4.55	4.05	22.90	7.12½	35.00
Jan. 30	9.75	10.12½	9.60	25.40	25.65	4.75	4.55	4.05	22.90	7.12½	35.00
Jan. 31	9.75	10.12½	9.60	25.37½	25.62½	4.75	4.55	4.05	22.90	7.12½	35.00
Feb. 2	9.75	9.87½	9.55	25.25	25.60	4.75	4.55	4.10	22.90	7.12½	35.00
Feb. 3	9.75	9.87½	9.55	25.20	25.60	4.60	4.40	4.10	22.90	7.12½	35.00

Europe

First Month of Year Fails to Bring Improvement in Europe —Germans Unable to Stabilize

London—(*By Cable*)—January brought no improvement in European iron and steel markets. Volume is low and prices are weak. In Britain demand for finished steel is better and pig iron exports from Middlesbrough increased last month. Continental semi-finished steel is competing strongly. Two tin plate plants have closed. Spain is a good prospective buyer for tin plate. Two sheetmakers in Scotland expect Canadian orders by spring. Dorman, Long & Co. have booked a £50,000 ($243,000) tram rail contract for London and a rail order for South Africa.

STEEL'S correspondent at Berlin reports efforts by German iron and steel makers to stabilize prices are unavailing. The markets in France and Belgium are easier though some improvement in business is expected in Belgium.

France Expects Further Decline Before Improvement

Paris—While there are signs in some countries that the trade depression has passed its climax, opinion in France is less hopeful, and it is anticipated that conditions here will continue to deteriorate for some time. Export business is difficult to obtain, and producers have tonnages to place for which they can find no buyers. This is particularly the case for semifinished steel, as Great Britain is out of the market and there are no inquiries. A rather unsatisfactory collection situation is developing in France and, although unemployment figures are low, wherever possible foreign workmen are being sent home. Hopes are maintained that plans for national equipment soon will materialize and result in orders involving considerable tonnages of iron and steel products.

The pig iron market is in confusion. Negotiations are under way for renewing agreements with Germany for exportation of pig iron. The French seek permission to export phosphorus pig iron to Germany and to prevent importation into France of foundry pig iron from the Saar. Difficulties have arisen on account of the fact that the Acieries de Rombas recently has blown in a furnace on foundry pig iron, destroying the equilibrium of production in France. The price of foundry pig iron, 2.5 to 3 per cent silicon, is about 290 francs ($11.35) per metric ton.

Beam Price Too High

There are few changes in semi-finished steel and the comptoir continues its policy of quoting to meet competition. The structural steel comptoir has made no change in beams, and many contractors are using wood or concrete, as they find steel beams too expensive. It is noticeable that the price of beams is 620 francs ($24.30), and reinforced concrete bars 525 francs ($20.50). There is keen competition in merchant steel and the market is weaker. Some sales of heavy angles have been reported at about 515 francs ($20.15), and ordinary merchant bars have been offered at 535 francs ($20.95). The plate and sheet market is confused. Wire prices are firm, and bright wire is quoted at 1120 francs ($40.85), galvanized wire at 1420 francs ($56.75) and wire nails at 1350 francs ($52.90).

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, Feb. 2	*British* Gross Tons U. K. Ports		*French* Metric Tons Channel Ports		*Belgium and Luxemburg* Metric Tons Channel Ports		*German* Metric Tons Rotterdam or North Sea Port	
Export Prices f.o.b. Ship at Port of Dispatch—By Cable								
PIG IRON		£ s d		£ s d		£ s d		£ s d
Foundry No. 3**.....	$14.22	2 18 6*	$12.64	2 12 0	$12.64	2 12 0	$12.15	2 10 0
Basic-bessemer.....	14.58	3 0 0†	11.91	2 9 0	11.91	2 9 0	13.37	2 15 0
Hematite, Phos. .02-.05	17.01	3 10 0	.....	.....	.....	.....	17.01	3 10 0
SEMIFINISHED STEEL								
Billets.....	$27.34	5 12 6	$17.50	3 12 0	$17.50	3 12 0	$17.50	3 12 0
Wire rods.....	41.31	8 10 0	29.16	6 0 0	29.16	6 0 0	29.16	6 0 0
FINISHED STEEL								
Standard rails.....	$40.10	8 5 0	$31.59	6 10 0	$31.59	6 10 0	$31.59	6 10 0
Merchant bars.....	1.68c	7 15 0	.89c	4 0 6	.89c	4 0 6	.91c	4 3 0
Structural shapes.....	1.68c	7 15 0	.79c	3 11 6	.79c	3 11 6	.81c	3 14 0
Plates.....	1.79c	8 5 0	1.01c	4 12 0	1.01c	4 12 0	1.06c	4 16 0
Sheets, black, 24 gage	1.90c	8 15 0	1.75c	7 19 0	1.75c	7 19 0	1.93c	8 15 0
Sheets, gal., 24 ga. corr.	2.44c	11 5 0	2.35c	10 13 9	2.35c	10 13 9	2.31c	10 10 0
Bands and strips.....	2.06c	9 10 0	1.02c	4 12 6	1.02c	4 12 6	1.01c	4 12 0
Plain wire, base.....	2.06c	9 10 0	1.13c	5 2 6	1.13c	5 2 6	1.18c	5 7 6
Galvanized wire, base..	2.39c	11 0 0	1.49c	6 15 0	1.49c	6 15 0	1.49c	6 15 0
Wire nails, base.....	2.39c	11 0 0	1.16c	5 5 0	1.16c	5 5 0	1.21c	5 10 0
Tin plate, box 108 lb...	$ 3.83	0 15 9	.....	.....	.....	.....	$ 8.26	1 14 0
Domestic Prices at Works or Furnace—Last Reported								
				French Francs		Belgian Francs		Renten Marks
Fdy. No. 3 Pig Iron**	$14.22	2 18 6	$11.37	290(2)	$13.95	500	$19.73	83
Basic pig iron.....	14.58	3 0 0	12.74	325(1)	12.56	450	21.04	88.50
Furnace Coke.....	2.92	0 12 0	6.59	168	5.02	180	5.09	21.40
Billets.....	27.34	5 12 6	19.21	490	18.41	660	27.93	117.50
Standard rails.....	1.79c	8 5 0	1.41c	785	1.59c	1,220	1.46c	136
Merchant bars.....	1.68c	7 15 0	.97c	540	.95c	730	1.47c	137
Shapes.....	1.90c	8 15 0	1.12c	620	.93c	715	1.43c	134
Plates.....	1.95c	9 0 0‡	1.37c	760	1.13c	870	1.64c	153
Sheets, black, 24 gage	1.90c	8 15 0	2.33c	1,295	2.34c	1,800	1.34c	126
Sheets, gal. 24 ga., corr.	2.44c	11 5 0	2.79c	1,550	2.73c	2,100	3.64c	340
Plain wire.....	2.06c	9 10 0	2.16c	1,200	2.15c	1,650	2.32c	217
Bands and strips.....	2.06c	9 10 0	1.24c	690	1.43c	1,100	1.70c	159

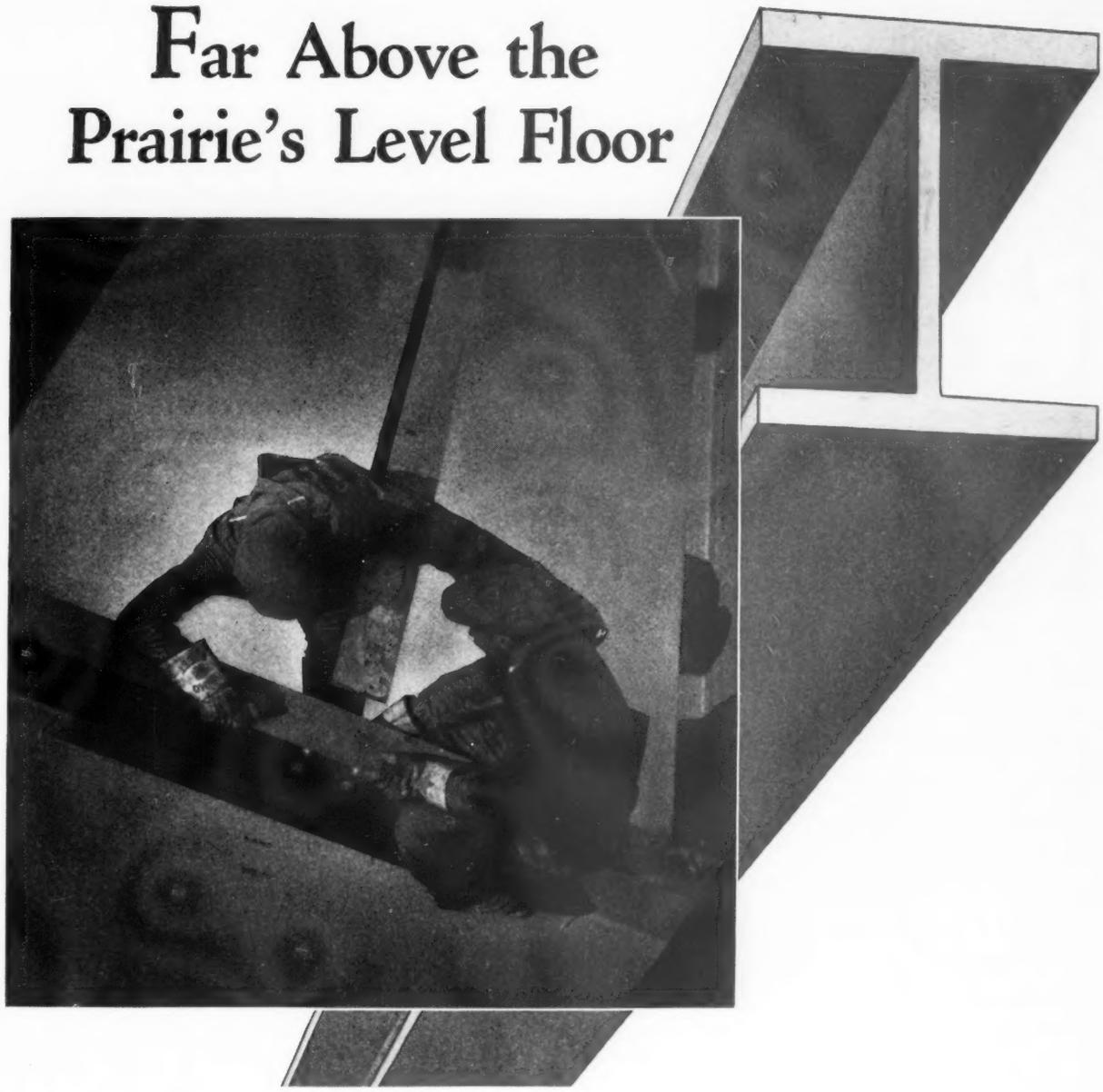
*Middlesbrough; †Basic; ‡delivered; (1) Basic-bessemer; (2) Longwy. British export furnace coke £0 12s 0d ($2.92) f. o. b. Ferromanganese £19 6s 0d ($93.80) delivered Atlantic seaboard, duty-paid. German ferromanganese £12 5s 0d ($59.54) f. o. b.; **Silicon 2.50-3.00. British quotations are for basic openhearth steel. French, Belgian, Luxemburg, and German are for basic-bessemer steel.

British Steelmakers Give Larger Domestic Rebate

London—Iron and steel export trade has shown no signs of increased activity, although inquiry is fair. Lack of enthusiasm by buyers is probably due to uncertainty in most markets with regard to prices. In Great Britain pig iron has dropped 5s ($1.20) per ton, but steel prices have not changed. An attempt has just been made to encourage users to buy British steel by increasing the rebates by 5s ($1.20) per ton for plates and structural steel.

According to the London Iron and Steel exchange reduction in Middlesbrough pig iron has brought rates to a competitive level and checked importation of Continental iron into the northeast coast districts. However, Indian iron is being imported in considerable quantities, particularly in Scotland. In the steel market little business has been placed by British users with Continental mills.

Far Above the Prairie's Level Floor



FOOT by foot, man's edifices have been thrust above the sweeping stretch of level land. Today, as never before, man follows his visions aloft on structures of sturdy steel. To the builders of the Central West, Illinois Steel Company offers a new source for steel's most modern development—C. B. SECTIONS.

Illinois Steel Company
SUBSIDIARY OF UNITED STATES STEEL CORPORATION
208 South La Salle Street
Chicago Illinois

C. B. SECTIONS

Machinery

MORALE in the machine tool market is maintained by a steady flow of inquiry, punctuated here and there by orders. No orders of sensational size have been reported as yet, users who have budgeted large sums for new equipment awaiting more definite signs of general business revival before launching their programs. Even the scattering orders during January made that distinctly a better month than December. With renewed activity in the automobile industry, in which the shows have been a factor, grinders in particular have made noticeable gains during the past week.

New York—Machine tool buying holds its recent gains, and volume of inquiry also continues to be encouraging. One of the largest dealers in the east reports January as the best month since last May, a condition which holds to a lesser degree for most dealers and builders. Many orders booked have been on long pending inquiries, frequently as the result of budget releases, and other inquiries are being revived from day to day. Buying is well spread over the industrial field, but in most cases is limited to one or two tools at a time. Despite improvement, however, machine tool men are inclined to be conservative in their predictions, hoping, of course, that current gains will continue.

Electrical interests, which report better bookings in most departments, note but little increase in the demand for standard motors, ordinarily considered a barometer. Another discouraging factor has been the failure of ball bearing plants to step up production. Their orders have not developed to the extent expected, this delay being due largely to the still sluggish condition of the automobile industry. One ball bearing plant in Connecticut, which produces for a Detroit automobile builder, has been fairly busy, however. Bids are in covering about 30 tools for various navy yards, and bids covering tools for other government shops are due to be opened this week and next week.

Pittsburgh—Machine tools are less active, inquiry failing to hold at its recent improved rate while orders lack improvement. January business was light but for some interests was ahead of December. Special equipment which had been fairly active recently is quieter while practically all of new inquiry is confined to small lots.

Worcester, Mass. — Aside from some grinder activity, the machinery market generally shows but little improvement. There is, however, a growing impression that quickening demand is just around the corner, this being strengthened by grinder orders and by some inquiry which has developed for lathes and drills. As far as grinders are concerned, one Worcester builder has booked a good sized order from a Russian tractor plant, another has sold six machines to Ford, and an Indiana gear works has bought six special grinders.

Cleveland—Sufficient new business has come to machine tool builders and dealers in this district during the past week to maintain the improved morale of the industry and to warrant adding a few more men to skeleton operating forces. Inquiries continue to come in from large prospective users of new equipment, many of these bearing upon machinery for which funds have been budgeted but on which orders are being withheld pending more definite signs of general business recovery. Needless to say, such inquiries are usually tempting and machine tool companies naturally are bringing to bear upon such prospects the full force of new engineering features which have been developed during recent months.

Small tools, and machine tool repair parts continue to have an active market and in some cases exhaustion of stocks of parts have led to mild revivals in production. A considerable number of heavy machine tools are being built for Russia, with further orders in view from that source. A Cleveland bidder was low on a number of machine tools for navy yards.

Chicago—Most machine tool dealers in this territory note slow, continued improvement, and January sales totals generally show a modest gain over December. Distributors who normally are interested in railroad accounts find encouragement in the outlook for the next 60 to 90 days. Outstanding among industrial inquiries is a list from an important steelworks, which includes two 24-inch lathes, two 16-inch lathes, a 24-inch shaper, 5-foot radial drill, 6-foot boring mill, and other tools. The expected $500,000 Lane Technical high school inquiry remains in the background, pending preparation of cost data for the Chicago board of education bearing upon the expected purchase of about $20,000 to $25,000 worth of equipment for two continuation schools. A number of inquiries for presses and light production equipment are before the market. Buyers are showing more interest, but nevertheless, dealers find it necessary to push prospective work instead of simply waiting for it to develop and therefore a number of inquiries, which have come from prospects who still seem to be in no hurry to close, are being given active attention.

Sales of milling machines by the Kearney & Trecker Corp., Milwaukee, were greater in January than in any month of the last quarter of 1930, it is announced.

Exports of Metalworking Machinery

	December		January through December	
	1930	1929	1930	1929
Engine lathes	28	79	1,053	879
Turret lathes	8	54	404	522
Other lathes	25	50	657	948
Vertical boring mills and chucking machines	23	6	315	208
Thread-cutting and automatic screw machines	22	107	660	1,054
Knee and column type milling machines	6	51	314	537
Other milling machines	18	58	679	681
Gear-cutting machines	9	18	398	434
Vertical drilling machines	2	24	456	395
Radial drilling machines	3	21	156	142
Other drilling machines	61	104	1,544	2,051
Planers and shapers	13	26	322	482
Surface grinding machines	8	30	174	288
External cylindrical grinding machines	19	67	509	824
Internal grinding machines	18	43	311	468
Tool grinding, cutter grinding, and universal grinding machines	61	129	1,568	1,416
Pneumatic portable tools	1,107	1,566	18,511	24,736
Chucks for machine tools	833	1,827	21,441	20,706

Mitco Armorgrids reinforce this floor in one of the plants of a company which is the largest one of its kind in the world. Leaders in every line recognize the flooring economy of Mitco Armorgrids and consistently specify their use for maintenance work and new construction.

Get Full Value from the Flooring Dollar

Reinforce With MITCO ARMORGRIDS

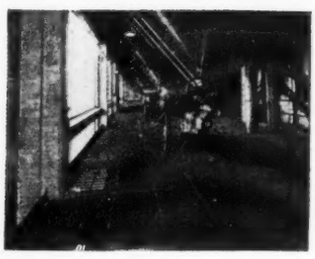
AN UNARMORED floor is an unprotected floor . . . wasteful and costly because of the inevitable cracking, pothole formation and wear that develop prematurely and involve expensive repair if not entire replacement.

In contrast, a floor armored with Mitco Armorgrids is an invulnerable floor that gives full value from the flooring dollar . . . renders long service with only the very minimum of wear and maintenance.

Mitco Armorgrids are quickly and easily installed. Coming in panel sizes to suit the job, they are merely laid on the rough base of the floor, leveled up, and the finishing fill poured into the mesh. There is no fitting, no fastening, no assembly work of any kind with Mitco Armorgrids

By providing a rail-like steel mesh that absorbs shock loads, wearing actions and destructive abuse, Mitco Armorgrids prevent the development of cracks and potholes, prolong the life of the structure and minimize maintenance work.

Figure on using Mitco Armorgrids the next time you build or repair a floor, platform, ramp or driveway of concrete, cement or other plastic. May we tell you more about Mitco Armorgrids, and send you interesting data on their service in well-known plants? Write us today.



Open steel flooring gives light and ventilation from floor to floor, thus improving plant efficiency. Wherever you require open steel flooring, specify Mitco, for it assures the maximum in light and ventilation, in combination with high strength and rigidity, and non-slipping, non-clogging surface. Write for bulletin.

HENDRICK MFG. CO.

43 Dundaff Street, Carbondale, Pa.

New York Office: 15 John St.
'Phone: COrtlandt 7-2440

Pittsburgh Office: Koppers Bldg.

Baltimore, Md. — Hazleton, Pa.
Birmingham, Ala. — Houston, Tex.
Boston, Mass. — Indianapolis, Ind.
Charleston, W. Va. — Los Angeles, Cal.
Chicago, Ill. — Montreal, Can.
Cleveland, Ohio — Philadelphia, Pa.
Detroit, Mich. — San Francisco, Cal.
Erie, Pa. — Seattle, Wash.
Tulsa, Okla.

Makers of Mitco Shur-Site Treads, Hendrick Perforated Metal Screens and Elevator Buckets, Hendrick Perforated Metal Grilles and Light and Heavy Steel Plate Construction.

MITCO ARMORGRIDS

for longer life from floors, platforms, ramps and driveways

Construction and Enterprise

CONCISE, TIMELY BUSINESS BUILDING OPPORTUNITIES IN FIELD OF INDUSTRY

New England

MERIDEN, CONN.—Planet Mfg. Co., 46 South avenue, whose incorporation recently was noted, advises through J. C. Pitel, vice president, that the company is to manufacture dishwashers under patents of the Planet Co., of Westfield, Mass. Shop for assembly is located here. Plans for complete manufacture, maturity indefinite, provide for purchase of considerable equipment. (Noted Jan. 22.)

NEW HAVEN, CONN.—United States Union Corp., a new firm here, will manufacture a patented leakproof pipe union. Initial operations will require 80 employes.

FALL RIVER, MASS.—Steel Roll Repairing Co. is a new company here, for the repair of textile machinery.

PROVIDENCE, R. I.—Autocar Co., Ardmore, Pa., has awarded contract for a new plant unit here, to provide larger servicing facilities.

New York

ATTICA—Department of correction, capitol building, Albany, has extended date to Feb. 26 for receiving bids for construction of a group of buildings here, to include shop buildings and a warehouse. (Noted Oct. 9.)

BROOKLYN—Progressive Pattern & Model Works has been incorporated with $10,000 capital by J. Waisman, 38 Park Row, New York.

BROOKLYN — David Isseks & Son Inc. has been incorporated with $50,000 capital by Attorneys Albany Service Co., 299 Broadway, New York, to deal in steel merchandise.

BROOKLYN—Bureau of supplies and accounts, navy department, Washington, will receive bids Feb. 17 on schedule 5063 for one oil-fired lead hardening furnace, and on schedule 5066 for 14 pneumatic chipping hammers, for delivery to the navy yard here.

BUFFALO—Overton Hygiene Products Co. has been incorporated with $10,000 capital by Bommer & Bommer, Iroquois building, to make septic tanks.

JAMESTOWN — Jamestown Metal Desk Co. is planning expansion of plant and facilities. Will consider a proposal Feb. 10 to increase capital stock from $600,000 to $1,000,000.

LE ROY—Board of trustees plans waterworks improvements, including installation of pumping machinery and auxiliary equipment.

NEW YORK—Shankin & Felman Inc. has been incorporated with $10,000 capital by S. C. Levine, 7 East Forty-second street, to deal in metal building materials.

NEW YORK—Board of education plans construction of three new schools in Queens at a total cost of $8,000,000. One school is to be equipped with shop equipment.

NEW PALTZ—Central Hudson Gas & Electric Corp., Poughkeepsie, N. Y., proposes to build a power plant here at a cost of approximately $85,000.

NEW YORK—Peoples Light & Power Corp., 27 William street, is considering erection of a $5,000,000 hydroelectric power project in North Carolina.

VALLEY STREAM — Six hangar units at Roosevelt Flying field No. 2 recently were virtually destroyed by fire. Loss is estimated at $100,000.

Pennsylvania

CORRY—Corry-Jamestown Mfg. Co., Center street, has private plans for the construction of a warehouse. Company makes steel cabinets and furniture.

CORRY—McInnes Steel Co. Inc., manufacturer of tool steels and equipment, has reorganization plans which will bring about an expenditure of $50,000 for additions and equipment.

ERIE—Heisler Locomotive Works, G. L. Swabb manager, 316 West Sixteenth street, plans to build a new plant. Plans are private.

ERIE—Erie Resistor Corp., H. C. Sherk manager, 644 West Twelfth street, plans to build a plant on West Twelfth street. Company manufactures radio parts.

MONESSEN — United States Steel Corp. proposes to improve its receiving dock here, work to start in the spring. Cost is estimated at $250,000.

PHILADELPHIA — Atlas Radiator Enclosure Co., 3946 North Broad street, has leased a 1-story plant at Eighth street and Chelton avenue.

PHILADELPHIA — Ajax Electric Furnace Corp. has been incorporated with $200,000 capital and Ajax Electric Co. Inc. has been incorporated with $100,000 capital by E. Allan Ginkinger, 6840 Woodcrest avenue, to manufacture and sell furnaces.

PHILADELPHIA — Bureau of supplies and accounts, navy department, Washington, will receive bids Feb. 10 on schedule 5055 for one electric furnace for heat treatment of aluminum alloy rivets, for delivery to the navy yard here. Bids will be received Feb. 17 on schedule 5046 for 26 drills and reamers. Bids will be received Feb. 24 on schedule 5073 for one horizontal milling machine.

PITTSBURGH—Catch Basin Supply Co. has been incorporated with $5000 capital by J. J. Dyer, 259 LeMoyne avenue, Mt. Lebanon, Pa., to manufacture and trade in plumbers', machinists', and contractors' supplies.

PITTSBURGH — Haller-Hirth Sailplane Corp. has been incorporated with $15,000 capital by Leo P. Haller, 616 Washington road, South Hills, Pittsburgh, to manufacture and sell aircraft, aircraft equipment and accessories.

New Jersey

NEW BRUNSWICK—United Steel & Iron Works has been incorporated with 1000 common shares by James J. Curran, to deal in ornamental iron and other products.

NEWARK—Public Service Electric & Gas Co., 80 Park place, has plans for a power substation. Cost is estimated at $90,000.

PERTH AMBOY—Peters Iron Works has been incorporated with $125,000 capital by John J. and Carl J. Peters, to deal in structural steel.

Ohio

BEREA—Board of public affairs, Thomas R. Barnum president, will construct a light plant addition at a cost of about $55,000, plans for which are being prepared by Charles W. Root, Society for Savings building, Cleveland. Generator and turbine of 1000-kilowatt capacity will be installed.

CANTON—Bosshardt Steel Corp., Allen avenue southeast, has awarded contract for plant reconstruction and installation of two furnaces for the manufacture of thin steel castings. Cost is estimated at $100,000. (Noted Dec. 4.)

CINCINNATI—O'Connell & Sweeney, Kellogg and Tennyson streets, have a building permit for the erection of a 1-story machine shop. Estimated cost, $10,000.

CLEVELAND—Last Steel Corp. has been incorporated with 200 no par shares by Robert D. Godfrey, 1414 Leader building.

CLEVELAND — Metal Spray Engineering Co. has been incorporated with 6000 no par shares by Franklin L. Meier, Massilon, O.

CLEVELAND — Steel Products Inc. has been incorporated with 100 no par shares by B. B. Goldman, 807 Williamson building.

CLEVELAND—Hamilton Steel Co., H. K. Hamilton president, 2508 Terminal Tower building, whose incorporation recently was noted, has acquired 15,000 square feet of floor space for warehouse facilities in the former Walker Motor Co. building at East 131st street and Taft avenue northeast. (Noted Jan. 22.)

CLEVELAND—Bender Body Co., T. Kuntz vice president, 6409 Barberton

(*Continued on Page* 119)

Construction, Enterprise

(*Continued from Page* 116)

avenue, is in the market for a lathe, shaper, drill press and milling machine.

CLEVELAND—Concrete Engineering Co., 1900 Euclid avenue, has taken space at 8219 Almira avenue southwest for expansion of warehouse facilities. New unit will be used for fabricating, storage and sales.

LIMA—Gorrell-Carnes Foundry Co., manufacturer of gray iron castings, advises through J. R. Carnes that a recent fire destroyed the company's office and pattern storage unit. Foundry suffered little damage. Company will move to a new location at South Greenlawn avenue and Erie railroad, in a plant formerly occupied by the Lima Pump & Supply Co. (Noted Jan. 29.)

SOUTH CHARLESTON—Village commission is considering erection of a municipal light and power plant. Charles F. Gilbert is mayor.

TOLEDO — International Harvester Co. of America Inc., 606 South Michigan avenue, Chicago, advises that new plant units to be built here will not be used for assembling or manufacturing, but for sales, service and warehouse purposes. (Noted Jan. 22.)

Indiana

GARY—New York Central railroad will expend $10,000,000 to $11,000,000 here to extend its yards over 100 acres, connecting with yards at Hammond, Ind. Expansion of shop facilities will be involved.

INDIANAPOLIS — Hubbard Steel Foundry Co. Inc. has been incorporated by Burrell Wright, 1512 Merchants Bank building, to operate a general foundry and metal manufacturing business.

KOKOMO—Luntz Iron & Steel Co. has acquired a 2-acre tract here for warehouse facilities.

Michigan

BENTON HARBOR—Leighway Fastener Co., 376 West Main street, has been incorporated with 10,000 no par shares by W. F. Newhouse, to deal in machinery, apparatus and appliances.

DETROIT—Servall Co., 4409 Seyburn avenue, has been incorporated with $25,000 capital by Fred James, Highland Park, Detroit, to manufacture and deal in parts, machinery and household equipment.

DETROIT—Metal Engineering Corp. has been incorporated with 1000 no par shares by William F. Schacht, 1812 Ford building, to engage in the business of construction contractors.

DETROIT—W. C. Rudd, assistant engineer, city department of water supply, advises that work recently noted will consist of the balance of the substructures and complete superstructures for switch house, turbine house and boiler house, also 1-story structure for machine shop, storehouse and garage, at Springwells station. Specifications and plans are under way and will be released for bids the latter part of February, bids to be received the latter part of March. (Noted Jan. 22.)

JACKSON—Automotive Fan & Bearing Co. is considering establishment of the manufacture of a line of airplane parts.

MUSKEGON—Inland Foundry Co. has been incorporated with 2500 no par shares by Eugene Baum, 1244 Ransom street, to operate a general foundry business.

Southern States

HUNTSVILLE, ALA.—Alabama Power Co., 600 North Eighteenth street, Birmingham, Ala., is reported to plan power plant improvements here. Cost is estimated at $100,000.

MONTGOMERY, ALA.—Capt. A. M. McFadden, constructing quartermaster, Maxwell field, will receive bids Feb. 17 for an air corps warehouse, machine shops, assembly shops and other units.

TALLADEGA, ALA.—Newbury Mfg. Co., H. A. Newbury, Monroe, N. Y., has acquired the plant of the J. & B. Foundry Co. for the manufacture of castings. Plant will later be equipped for the manufacture of various plumbers' and steam pipe fittings.

BALTIMORE—Machine shop will be included in construction and alterations to be undertaken by Crown Cork & Seal Co., William Cooper engineer. Lucius R. White Jr., Court Square building, is architect.

WASHINGTON—Bureau of supplies and accounts, navy department, will receive bids Feb. 24 on schedule 5067 for two gasoline engine-driven electric generators. Bids will be received Feb. 24 on schedule 5064 for one plate bending rolls machine, for delivery to Hampton Roads, Va. or to San Francisco, Calif.

NEW ORLEANS—Public Service Co. will devote about $500,000 of its 1931 budget of $1,830,445 for improvements, to construction of new substations and lines.

OPELOUSAS, LA.—City will receive bids Feb. 10 for a 1000-horsepower diesel engine unit and other power equipment.

AIKEN, S. C.—P. M. Pope, 111 West Ashley street, Jacksonville, Fla., is considering erection of a power plant and system here at a cost of about $500,000.

KNOXVILLE, TENN. — Knoxville Structural Steel Co., Morelia avenue and DuPont street, has started construction of a new warehouse unit.

Missouri

KANSAS CITY—Keystone Mfg. Co., A. W. Johnson manager, 513 Hall building, plans establishment of an aluminum foundry and other units for the manufacture of an oil and gasoline register for automobiles. Maturity is indefinite.

Oklahoma

OKLAHOMA CITY—Oklahoma Gas & Electric Co. plans construction of substations and rebuilding of lines. Locations for substations include Oklahoma City, Enid, Shawnee and Bristow, Okla. and Ft. Smith, Ark.

Texas

HENDERSON—East Texas Refining Co. plant being built here will include a pumping station and boiler house facilities. F. W. Burford is president.

HOUSTON — Southwest Neon Sign Co. has been incorporated with 2000 no par shares by H. S. Crawford, 234 Hathaway street, to manufacture electrical signs.

SAN ANTONIO—Board of education, Matagorda and Water streets, proposes to build a 3-story vocational school at 500 Main street. Tools and equipment will be required. Estimated cost, $150,000.

Wisconsin

MADISON—Madison Gas & Electric Co. proposes to extend its power facilities at a cost of about $400,000.

MADISON—I. Bahcall Inc. has been incorporated with $100,000 capital by I. Bahcall and E. Bahcall to deal in iron and metals.

RACINE—Board of water commissioners will proceed with construction of a proposed $500,000 pumping station and filtration plant. Plans will be prepared by Alvord, Burdick & Howson, 20 North Wacker drive, Chicago. Bids will be taken about May 1. Walter Pierce is secretary.

North Dakota

MANDAN—Northern Pacific railroad, Railroad building, St. Paul, Minn., will construct a new freight yard here, to include a machine shop. B. Blum is chief engineer, St. Paul.

South Dakota

VERMILLION—City council has under consideration moving the municipal light and power plant, addition of diesel units and installation of new boilers.

Iowa

EARLHAM—Hawkeye Portland Cement Co., Hubbell building, Des Moines, Iowa, proposes to build a 2-story machine shop, 36 x 106 feet. Plans are private.

Nebraska

LINCOLN—Omaha, Lincoln & Beatrice railroad, G. P. Abel president, 234 South Fourteenth street, proposes to build a warehouse, 150 x 375 feet, at

Nineteenth and Y streets. Estimated cost, $250,000.

Montana

GREAT FALLS—City will soon ask bids for construction of a pumping plant having a capacity of 20,000,000 gallons per day. Total cost is estimated at $300,000. Items will include pumps, costing $19,000; starting equipment, $11,000, valves, pipes and miscellaneous equipment. C. P. Wells is city engineer. Black & Veatch, Kansas City, Mo., are consulting engineers.

Pacific Coast

LOS ANGELES—Western Aircraft Co., 2033 West Sixteenth street, has let contract for a 1-story plant, 100 x 100 feet. Cost will approximate $50,000.

REDDING, CALIF. — Gerlinger Foundry & Machine Works Inc. has been incorporated with $25,000 capital by Fred W. and L. C. Gerlinger.

SAN DIEGO, CALIF.—Bureau of yards and docks, navy department, Washington, has awarded contract to Fred F. Greenfield & Co. for a metal aircraft structures shop. (Noted Nov. 20.)

SAN FRANCISCO—G. W. Price Pump & Engine Co., 1350 Folsom street, will build a 1-story shop at Folsom and Tenth streets, at a cost of about $11,000.

SAN MATEO, CALIF.—Pacific Gas & Electric Co., 245 Market street, San Francisco, has awarded contract for a group of shop buildings here. Cost is estimated at $60,000.

STOCKTON, CALIF.—B. W. Mfg. Co. has been incorporated with $500,000 capital by Ira E. Smith, to manufacture automatic control equipment.

VERNON, CALIF.—City plans a new municipal power plant, including a 47,000-horsepower diesel engine plant. Bond issue of $3,900,000 is available. Construction will start in the near future.

SEATTLE, WASH.—Bureau of supplies and accounts, navy department, Washington, will receive bids Feb. 24 on schedule 5061 for one upright stationary head drill, for delivery to the naval air station here.

Dominion of Canada

CALGARY, ALTA.—Anthes Foundry Ltd., 64 Jefferson street, Toronto, Ont., is considering erection of a new plant on its property in East Calgary. Maturity of plans is indefinite.

HAMILTON, ONT.—Fyr-Fyter Co. of Canada Ltd. has been incorporated with 40,000 no par shares by D'Arcy Martin, Ravenscliffe, Hamilton, to manufacture and deal in fire extinguishers and fire fighting apparatus.

LONDON, ONT.—Board of education, W. R. Martin chairman, proposes to erect an addition to a technical school. Cost, with machinery and equipment, is estimated at $200,000.

OTTAWA, ONT.—City council is considering the purchase of pumps for a waterworks station on Queen street, to cost $56,000. W. E. McDonald, city hall, is engineer.

TORONTO, ONT.—B. McDonald & Sons Ltd. has been incorporated with 5000 no par shares by James P. Manley, North Ontario building, to carry on the business of contractor and steel fabricator.

TORONTO, ONT.—Superior Zinc Corp. of Canada Ltd., whose incorporation recently was noted, plans to build a secondary zinc refinery on property adjoining that of the Canadian Rumely Co. Ltd. Negotiations, handled through the Toronto industrial commission, have been entered into by Alfred Davis of the Rumely company, and the Superior Zinc Corp., Jefferson building, Philadelphia.

WATERLOO, ONT. — Kitchener Spring Co. Ltd., 34 Bridgeport road, whose incorporation recently was noted, advises that a plant was purchased some time ago. Equipment needs include a helical spring coiler, spring knotter, punch press and other items. E. J. Huras is president and general manager. (Noted Jan. 29.)

WINDSOR, ONT.—Holden Heater Co. Ltd. has been incorporated with 400 no par shares by Howard B. Holden, 868 Lawrence street, Detroit, to operate as manufacturers.

New Trade Publications

CONVEYORS—Alvey Mfg. Co., St. Louis, in a current leaflet presents applications of its type of conveyors for industrial use in the economical handling of materials and products.

HAND TAPS—Bristol Co., Waterbury, Conn., has issued a booklet on the hand taps necessary to tap holes for insertion of Bristo-Dardelet self-locking cap and safety set screws, employing the Dardelet screw thread.

TRUCKS—Various types of ruggedly built trucks are shown in a current bulletin of the Crescent Truck Co., Lebanon, Pa. Power and foot-lift types for tiering and transportation are shown in various uses.

WELDER—Bulletin No. 117 of the Thomson-Gibb Electric Welding Co., Lynn, Mass., and Bay City, Mich., shows a special large vertical welder built for heavy mash or multiple projection welding. It delivers heavy pressures and is used in heavy welding.

INGOT BRONZE—A recent bulletin from Tottenville Copper Co. Inc., executive offices, 609 West Twenty-ninth street, New York, is entitled "Facts About Ingot Bronze." It covers development and a description of the properties of a special alloyed ingot bronze for valves, meters or high-grade machinery castings. Several other ingot metals also are described. An outline of the technical and consulting services offered by the company is given.

VALVES — Bleeder line protecting valves are illustrated and described in bulletin No. 8-K of the Schutte & Koerting Co., Philadelphia. These valves are interesting since bleeder turbines are being installed frequently in power and industrial plants. The bulletin gives data regarding construction, features, sizes, prices and typical installations.

TOOLS AND EQUIPMENT—A catalog by Joseph T. Ryerson & Son Inc., Chicago, includes practically every type of tool and portable machinery used in the metalworking field. It omits all supplies, being devoted to equipment for manufacturers, job shops and contractors. The variety of equipment covered is wide and includes the needs of the machine shop, sheetmetal and tin shop, structural, boiler, blacksmith and contractor.

REFRACTORIES — A catalog has been issued by the M. H. Detrick Co., 140 South Dearborn street, Chicago. It is arranged as a handbook for refractory furnace engineers and is printed in colors. The principle of Detrick air-cooled walls are explained, with illustrations of the structural elements used. Representative installations are shown. Table and charts are given for calculating heat transfer through refractories, the air needed for cooling and general information for the designer.

ARC WELDING—Hobart Bros. Co., Troy, O., has issued an 80-page, pocket-size book presenting essential facts for successful application of electric arc welding processes. Nine chapters are devoted to such topics as the welding arc; welding equipment; types of joints; weldability of metals. The information is presented in brief, logical, and non-technical manner, including useful information derived from practical experience. Welding products and equipment made by the company are described and illustrated.

PUMPS—Worthington Pump & Machinery Corp., Harrison, N. J., has issued a number of bulletins recently on several types of pumps in its line. D-423-S4 covers power pumps, vertical triplex single-acting type; D-450-D1A, deep well pumps; D-711-S5 power vacuum pumps, horizontal single, double acting; S-550-B2 gas engines, horizontal, four-cycle double acting; W-318-S2, W-318-S7 and W-320-S1 centrifugal pumps; W-1200-B1 Worthington-Gilman rock drills and drill steel shop equipment.